

RESIDENTIAL SATISFACTION OF MILITARY PERSONNEL LIVING IN PRIVATIZED
AND NON-PRIVATIZED HOUSING

by

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(Under the Direction of Andrew Carswell)

ABSTRACT

This research explored the residential satisfaction of military personnel, who live in military housing. Using data obtained from both the military Residential Satisfaction Survey and American Community Survey, ANOVA and ordinary least square regressions were performed to examine the relationship between community type and residential satisfaction. This study also examined the key determinants of military satisfaction compared to key determinants of civilian residential satisfaction. The findings indicate that type of community had no bearing on overall satisfaction, while landscaping, office staff and unit quality were all found to be significantly related.

INDEX WORDS: Residential Satisfaction, Military, Housing, Privatized, Military Housing Privatization Initiative

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DEDICATION

I would like to dedicate this research to the family and friends, who helped to support me throughout the process. I could not have done this without them.

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CHAPTER 1

INTRODUCTION

The Department of Defense (DOD) has long used in-kind assets, such as housing, as a means to entice able-bodied Americans away from the private sector and into military service (Office of the Deputy Under Secretary of Defense Installations and Environment, 2007). In the early to mid-1990s, the military's housing options became more of a reason for servicemen and women to choose not to re-enlist (Office of the Deputy Under Secretary of Defense Installations and Environment, 2007). With the increased military action in both Iraq and Afghanistan, the need for recruitment has intensified; however, many military personnel able to gain access to military housing often endured 30-year old units that were insufficiently maintained. The lack of affordable housing choices, coupled with the inadequate dwellings offered by the DOD, led many military personnel and their families to choose not to re-enlist (Office of the Deputy Under Secretary of Defense Installations and Environment, 2007; Twiss & Martin, 1999). Often the spouse, who spent the most time in the unit, was the one finalizing this choice. In 1996, Congress enacted the Military Housing Privatization Initiative (MHPI) as part of the 1996 Defense Authorization Act, giving the DOD increased authority to enter joint ventures with private developers in order to address the military's housing problems (DOD, August 1, 2007). The DOD has suggested that privatization will have a positive impact on the military bases' overall housing quality. In turn, it is argued that this will translate into improved readiness, increased morale, and overall retention from a higher proportion of personnel living in the privatized units. Offering better units than the available affordable, market units to military

personnel is a major function of the DOD and the MHPI (Office of the Deputy Under Secretary of Defense Installations and Environment, 2007).

While offering a higher quality housing option in order to increase the satisfaction of military personnel and their families is a major function of the MHPI, little is known about the residential satisfaction levels of these military families. Paulus, Nager, and Larey (1996) reported on the housing satisfaction of Army families, but this was actually before the MHPI was in effect; thus research on current military housing satisfaction is needed. Knowledge of these members' residential satisfaction is vital to the DOD, base commanders, private developers and policy makers, because this knowledge can show how the MHPI is performing and the effect it is having. Whether or not the MHPI is performing adequately could shed light on the recruitment rate, retention rate, and funding for the military. All of these are important factors at a time when the military needs both a great deal of service members and funding (Vest, 2000).

This study will attempt to fill the lack of knowledge surrounding the residential satisfaction of junior enlisted members and their families, who predominantly live in the privatized communities. This study will use data from one military branch's Residential Satisfaction Survey and American Community Survey data, in order to compare the residential satisfaction of military personnel living in privatized housing to military personnel living in non-privatized, base housing. This study will also look at whether the type of community the base offers is a determinant of its personnel's satisfaction, while controlling for past factors that have shown to be determinants of residential satisfaction, such as homeownership, income, and other residential and community features. This study will control for the above-mentioned factors at the county level. Looking at whether the types of communities are determinants of the bases' personnel satisfaction levels will determine whether the privatized communities help increase

these bases' personnel satisfaction relative to those not living in the communities. Offering housing that is of higher quality and satisfaction relative to other units in the private sector is a major objective of the MHPI; but at the present time, there is no empirical evidence to determine whether this objective is being met. Whether the new privatized options are increasing household utility could have major policy implications. For instance, if privatization efforts were found not to increase residential satisfaction, funding for these projects could be jeopardized. However, if privatization efforts are found to increase satisfaction more funding could be given to increase the size and span of the project.

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 either the ports or frontier post where they were stationed. Meanwhile, officers' families were expected to live together, and were provided military housing. After World War II, the government's first attempt to privatize military family housing took place 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 both eventually overturned due to high cost (Morrison, 1975; Twiss & Martin, 1999). From the early 1970s to the early 1980s, the separate treatment of junior enlisted members and senior service members was beginning to be remedied when the Department of Defense (DOD) realized that the junior enlisted members had limited housing options. In 1979, the military entered into an agreement with the Department of Housing and Urban Development (HUD) under Section 236, which set aside low-income housing for military personnel, including junior enlisted members (Herschfield, 1985; Twiss & Martin, 1999). While this program was a

success in providing military families much needed housing, the program came under scrutiny for setting aside housing for 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 tried an early return to privatized military family housing using Sections 801 and 802. Section 801 (Military Family Housing Leasing Program) was a “build-to-lease program” that funded 11,000+ homes from 1985-1995, but once again the program excluded junior enlisted personnel. Section 802 also did little to provide affordable military housing. Both Sections 801 and 802 were eventually eliminated due to cost (Morrison, 2005; Twiss & Martin, 1999).

In addition to the issue of a housing shortage, there was also 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 they owned were in need of repair, with 38% requiring either major improvements or 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). In 1996, Congress incorporated the MHPI into the 1996 National Defense Authorization Act, to both renovate and repair existing DOD-owned units and to create new housing opportunities for the junior enlisted members. 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 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 to fund these developments (Office of the Deputy Under Secretary of Defense Installations and Environment, 2007; Vest,

2000).

The determinants of who qualifies to be the developer of these units differs among the separate branches of the United States Armed Services. For example, for one branch's determinants a developer must have an equity source of \$10 million to front the development, an established track record of success, a long term commitment, alliances with other companies, reputation of quality in consumer service, non risk-taking environment, and an atmosphere of knowing "time is money" in order to qualify (The Air Force Center for Environmental Excellence, 2007). For all branches, after a developing contract is awarded the government leases the land to the developer for a nominal rent for a 50-year term, makes a direct loan of \$10.6 million to the developer, and provides a guarantee for a private loan against base closure, downsizing and deployment. For the 50-year term of the lease the developer owns, operates, and maintains all the units of the lease. To date the DOD has awarded over 200,000 units to private developers throughout all branches of the military at a cost of over 200 billion dollars (Office of the Deputy Under Secretary of Defense Installations and Environment, 2007; Vest, 2000)

All units and rents are based upon pay grade, with the rent not exceeding the Base Housing Allowance (BHA) at the dependent rate for the designated pay grade, minus 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, his or her wealth does not. Along with these changes in the military family housing, the question remains as to whether the new housing situation will affect the military personnel's residential satisfaction.

Research Questions

Given the need for information on the residential satisfaction of military personnel, the

following research questions will be addressed in this study:

- (1) How does the residential satisfaction of military personnel living in the successfully completed private units compare to the residential satisfaction of military personnel living in units not included in the privatization program?
- (2) How do civilian community determinants of residential satisfaction compare to military community determinants of residential satisfaction?

Definitions

Junior enlisted personnel: someone that has joined the military and holds the rank of (E1-E4).

These personnel members usually do not have a higher education beyond high school and can be as young as 17 with parental permission.

Basic Housing Allowance (BHA): a housing allowance paid to military personnel, which is based on the member's rank, duty location, and whether or not they have dependents (family members).

Military Housing Privatization Initiative (MHPI): a public/private program whereby private sector developers may own, operate, maintain, improve and assume responsibility for military family housing. The MHPI was enacted on February 10, 1996, as part of the National Defense Authorization Act for Fiscal Year 1996. Under the MHPI authorities, the Department of Defense (DOD) can work with the private sector to revitalize military family housing by employing a variety of financial tools; including direct loans, loan guarantees, equity investments, and conveyance or leasing of property or facilities (Office of the Deputy Under Secretary of Defense Installations and Environment, 2007).

CHAPTER 2

REVIEW OF LITERATURE

Residential satisfaction has been studied extensively in literature as recognition of its effects on an individual/family's quality of life, and as a determinant of how people react to their environment (Lu, 1999). While this subject has been studied by many different disciplines (sociology, psychology, and family and child development), one particular subset of the population has been ignored: military personnel. Those in the military and their families not only face different housing choices, but also other environmental and psychological factors with which the majority of American citizens do not come in contact. Some of the factors that the majority of military families face include, a spouse or parent going to war and increased mobility to numerous geographic locations due to change in assignment (Cozza, Chun, & Polo, 2005; Maguen & Litz, 2006; Paulus, Nager, & Larey, 1996; Tucker, Sinclair, & Thomas, 2005; Weber, 2005). These factors could have an effect on the way service members and their families view their surroundings, making past papers on residential satisfaction un-generalizeable to this population. In order to understand the residential satisfaction of those in all branches of the military, this paper must first look at what residential satisfaction is and past theories on the construction of residential satisfaction. Further sections explore literature on the determinants of residential satisfaction, factors facing military families, and a study on the residential satisfaction of Army personnel before the new privatization measures. This section concludes with a brief paragraph on the implications of their research and a description of the theoretical framework.

What is Residential Satisfaction?

Past literature has defined residential satisfaction as the pleasure one receives from living in a specific place, and is measured as the difference between the situation the individual/family is experiencing and what they desire (Francescato, 1998; Francescato, 2002; Lu, 1999; Shelton, Gruber, & Godwin, 1983). Residential satisfaction encompasses more than the individual or family's dwelling unit, it encompasses the individual's or family's attitudes toward its residential environment. This residential environment is made up of the individual's or family's home, its neighborhood, the neighbors, and its management for those who rent (Francescato, 1998; Francescato, 2002; Lu, 1999; Shelton et al., 1983). How the family looks at its residential environment shapes its overall satisfaction. Other factors affecting residential environment include cognitive behavior, personal characteristics, demographic characteristics, objective attributes of the environment, and subjective attributes of the environment (Francescato, 1998; Shelton et al. 1983).

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 one's residential satisfaction (Francescato, 2002; Lu, 1999; Paulus et al., 1996; Shelton et al., 1983). The first argument proposed by Morris and Winter (1975), is that households base their satisfaction on both their cultural and societal norms. They identified six American housing norms used by individuals or families when evaluating their home: space norms, tenure norms, structure-type norms, quality norms, neighborhood norms, and economic norms. Space norms encompass the provision that there is enough space for the activities that typically occur in the home, such as rooms for cooking, eating, recreation and sleeping. Tenure norms are the attachment to owning one's own home. While Morris and Winter (1975) did acknowledge the

boom in multifamily housing during this time, they believed that living in these units was a stepping stone to homeownership. Structure-type norms have to do with the type of dwelling unit one lives in, such as single-family or multifamily. Overall, Morris and Winter (1975) argued that the majority of families prefer single-family detached homes. Quality norms are the attributes that contribute to the quality of a unit through subjective response contingent upon income. Neighborhood norms encompass neighborhoods that are mostly residential in nature, in a good school district, with safe, well-maintained streets, and which have a homogeneous population. Finally, economic norms are determined on the basis that the housing costs do not exceed a reasonable proportion of one's income.

Cultural and societal norms do not always coincide. For instance, while owning a single-family detached home is the cultural norm, some households may favor renting in multifamily dwellings due to financial constraints. When this clash between the actual housing and the cultural or societal norms takes place, there is a housing deficit, which gives rise to residential dissatisfaction. Households will then either migrate or adapt in order to increase their satisfaction. While this argument into the objective function of residential satisfaction has been shown to hold for the overall population, it might not affect the military personnel's satisfaction in the same way as the general population (Ballie, 1990; Bruin & Cook, 1997; Cook, Bruin, & Laux, 1994; Lu, 1999).

Those who join the military logically have a different norm base than those who are not in the military; therefore, the norms that negatively affect the general population could have no effect on those in the military. For instance, while homeownership is the norm for the majority of the general American population, it may not be for those in the military who have increased frequency of migration, so while in the general population those who own a home have increased

satisfaction relative to those who do not, this norm might not be the case for the military population. The possibility that enlisted military personnel could have different norms or reactions to changes in the norms illustrates the importance of looking at this population separately.

The second argument proposed by 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. Similarly, 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 this forced move. The differences present another reason why looking at the military population separately is so important to the overall understanding of residential satisfaction. Knowing the definition of residential satisfaction and the shaping of this satisfaction are important in figuring out what determinants should be included within the analysis.

Determinants of Residential Satisfaction

The majority of past empirical research on residential satisfaction has used the two arguments discussed above as a theoretical framework. The general purpose of this literature has been to establish the determinants of housing satisfaction, neighborhood and community satisfaction, and management satisfaction in order to get a clear measure of the individual's and family's residential satisfaction. Many studies have performed an analysis of the determinants of residential satisfaction on 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 an analysis on a wider population group within a certain state. 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, with the exception of Lu (1999) and James (2007), who both used the secondary data available within the American Housing Survey.

The majority of empirical studies have 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 degree of choice among housing and a comparison with prior housing and that of friends affecting one's overall residential satisfaction (Michelson, 1980; Paulus et al. 1996; Rapoport, 1985; Taylor & Brower, 1985; Tognoli, 1987). In addition, papers looking into a person's satisfaction with his or her community found 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) to also be significant determinants. James, Carswell, and Sweaney (Forthcoming) looked at the residential satisfaction of apartment communities using data from the website ApartmentRatings.com. They found office staff, maintenance, noise, safety, parking, building, and landscaping significantly related to tenants' overall rating of satisfaction.

Few studies in the United States have looked at the residential satisfaction of those living in affordable housing and renters living in multifamily housing dwellings. One study by Paris and Kangari (2005) that looked into affordable multifamily housing suggests that the management staff, housing rules, enforcement of housing rules, improvement in the units, and quality of the units all influence the residential satisfaction of individuals that live in these environments. While this study on the determinants of residential satisfaction in affordable multifamily housing might be better suited for understanding the residential satisfaction of military households, the study only comprised affordable housing properties in Atlanta. Another study by James (2007) looked at the impact of structural features and physical amenities on the residential satisfaction of multifamily housing renters. The study found that separated space and the residents' control over their living environments led to higher residential satisfaction. The finding from studies looking at multifamily and families living in affordable housing must be combined with the other stated determinants of residential satisfaction, in order to get an adequate finding of the residential satisfaction of military personnel and to see if type of community is a determinant of their satisfaction.

Factors Facing Military Families

Academic circles have discussed and analyzed the importance of morale among military personnel since the 1940s. These academics view morale as the single most important factor in the outcome of war (Brotmarkle, 1941; Pope, 1941; Rotte & Schmidt, 2003; Ulio, 1941). With the ongoing military operation in Iraq, the importance of morale and improving it comes into question once again. Morale of both the military personnel and their families becomes important when analyzing their residential satisfaction (Paulus et al., 1996). Both military personnel and their families have issues that influence their housing situations that could differ from civilians.

First, past literature pertaining to psychological factors that affect military personnel are examined, then environmental factors that affect military families. Since past studies have shown that the enlisted member and the spouse have different levels of morale, they are examined separately (Paulus et al., 1996). Finally, literature pertaining to environmental factors for both the enlisted members and their families are examined.

Military personnel face stressors that the average American citizens do not have to endure, including the stress of war zone deployment and having inadequate dwellings for their families (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, causing marital discord (Paulus et al., 1996; Tucker et al., 2005). The amount of their workload, interpersonal conflict, distance from family, and limited income all lower the well-being of enlisted personnel.

One factor that affects military families is parental deployment. Past studies have shown that parental deployment has led to increased anxiety and depression among children of the deployed. Other factors affecting military families include the potential for the enlisted member to become hurt or killed (Cozza et al., 2005). Past research has shown these factors to have negative effects on the emotional well-being of the family and could potentially cause families to look at their surroundings differently. Weber (2005) found that high geographic mobility has a positive impact on military children, relative to nonmilitary families.

Military personnel and their families face environmental issues, such as lack of housing choice, distance from family, ineligibility for on-base housing and low income. Paulus et al. (1996) found the individual's/families' perceived choice and surrounding environmental quality to be key determinants in the level of reported housing satisfaction. The study mentioned above is discussed further in the following section.

Residential Satisfaction of Military Personnel

Only one known study has focused on the residential satisfaction of military personnel. The 1996 study by Paulus et al. analyzed the stress associated with 169 Army families that lived in either apartments or manufactured homes near an Army base. Of those surveyed, 34% lived in apartments and 66% rented mobile homes. Both spouses took part in the housing survey. They were asked about the degree of choice in selecting their present home, to evaluate their present home relative to their friends' current homes and their past housing, and their expectation of improvement in future housing. They were also asked to rate the living quarters based on its attractiveness, recreational facilities, noise, friendliness, services, management, maintenance, crowding, and many other factors. Finally, they were asked to rank their particular unit based on such items as spaciousness, and if they felt their housing unit was home like. An Army life survey was administered during a second visit to each family to determine the morale, well-being, health, social activities, and daily problems. Environmental quality was also determined by the researchers. The results indicated that the residential satisfaction levels of those living in apartments were not statistically different from those living in mobile homes, as previously believed. They also found that high environmental quality was a significantly positive predictor of the satisfaction both spouses felt towards their home, as was the feeling of having choices over where they lived and expectations of improvement. Finally, the researchers found that spouses had more problems with housing and lower morale than the enlisted spouse.

While these results are useful for looking at the residential satisfaction of military personnel, the study was done before the privatization of military family housing and on a small subset of 169 families. More choices for enlisted personnel have opened up with the

implementation of privatized military family housing. The implementation of this new program give researchers the opportunity to compare the residential satisfaction of civilians and military families who live in the same neighborhood under similar economic conditions. Researchers also have the opportunity to establish whether the program is actually helping the low-ranking enlisted segment of the population. Many questions need to be addressed such as, whether the program will decrease support for on-base military support (child-care, health care, schools), and also whether the lack of monitoring from the government will increase or decrease satisfaction (Twiss & Martin, 1999).

Implications of Present Research

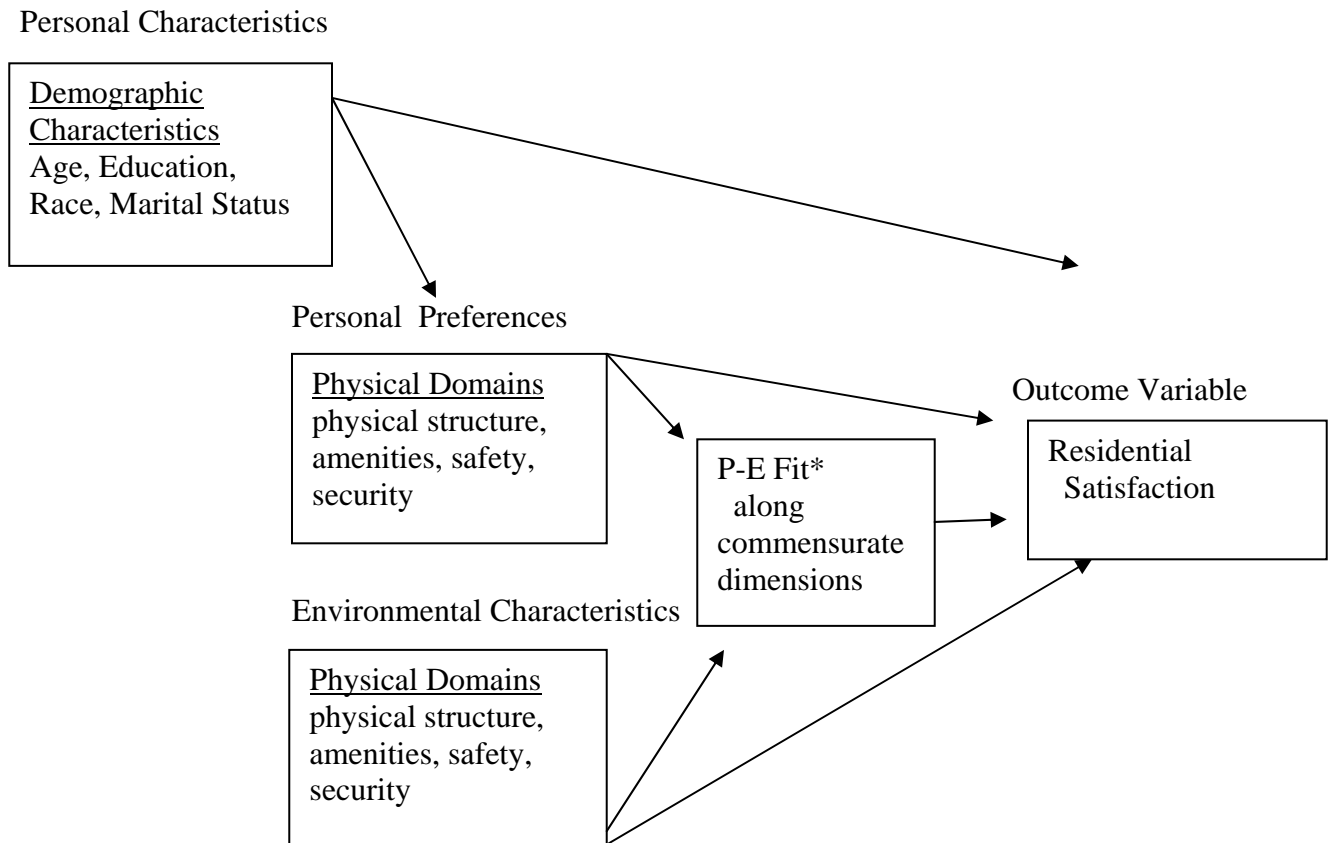
While a great deal of research has been done on the underlying factors and determinants of residential satisfaction, the military population has largely been ignored. Through focusing just on the military population a more realistic assessment of the residential satisfaction of military personnel can be derived. By comparing members of the military population who live in privatized housing to those who live in non-privatized housing, this study will gain a better understanding into the possible effects of the privatization program on these members.

Theoretical Framework and Hypothesis

Kahana, Lovegreen, Kahana, and Kahana (2003) stated that residential satisfaction was formed through the congruence of personal preferences and environmental characteristics (P-E Fit). When there are discrepancies between personal preferences and environmental characteristics, a problem in the individual's residential satisfaction arises. Figure 1 gives a brief overview of the model developed by Kahana et al. (2003) to show how the residential satisfaction of individuals develops using the PE-Fit theoretical model. An individual's personal preferences are contingent upon his or her personal characteristics, which include demographic,

economic and social characteristics. The PE-Fit is made up of both the individual's personal preferences (P) and environmental characteristics (E), which both include physical domain, amenities, safety, and security. These functions all come together to form the individual's residential satisfaction.

Figure 2.1: 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

CHAPTER 3

METHODOLOGY

In order to investigate the residential satisfaction of military personnel who live in privatized housing, this study uses both residential satisfaction survey data collected by one branch of the military and county-level demographic data collected by the Census Bureau. This study does not seek to identify all of the determinants of military personnel housing satisfaction, but rather to compare their satisfaction to military personnel who do not live in privatized communities.

Data

The first data set that will be used in this study is the REACT survey that was performed by one of the four branches in 2005 and 2006. In order to develop the REACT survey, 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 surveys and comment sheets to all non-privatized housing residents and privatized housing residents of four privatized housing developments. In addition, privatized project owners conducted resident surveys. In all, fifty-four 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 will allow for a comparison of the residential satisfaction of military personnel living in both privatized and non-privatized housing at the aggregate level.

The second data set this study will employ is the American Community Survey (ACS).

The ACS is collected by the U.S. Census Bureau every year from every county in the United States, with 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. Every year the ACS supports the release of single-year estimates for geographic areas of 65,000 or more (U.S. Census, December 2, 2007). This study will combine county level demographic data with the residential satisfaction data, in order to control for outside factors. Since living close to the base is one of the key outcomes associated with the MHPI, using county level data is the best option.

Strengths of the Data

Using data provided by the military and the American Community Survey was the most realistic design for this research, given the lack of publicly available data on military housing satisfaction. The researcher was not only able to investigate the residential satisfaction of military personnel, who live in privatized military housing through using the survey methods, but also was able to control for outside determinants that might also affect residential satisfaction.

Variables

Dependent Variable

The researcher used the question *Please indicate how much you agree or disagree with the following statement: I would recommend this community to others* as the dependent variable. The researcher this variable both due to the lack of an overall satisfaction measure and through the results of James et al. (forthcoming), which showed a strong correlation between the resident's reporting of overall satisfaction and whether the residents said they would recommend the apartment community to a friend.

This variable was constructed out of responses to the survey question that 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. Next, the mean of all the respondents' scores were calculated and multiplied by twenty to get the overall score. This variable had a scoring of 0 to 100, with the description of each of the scoring categories shown in Table 1, along with the number of bases in each scoring category.

Table 1.
Description and Variation of each of the Scoring Categories for Recommendation Score 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

Independent Variables

Type of community

The key independent variable is the type of community in which the respondents reside, which were coded as dummy variables with the reference group being the non-privatized community. This variable enabled the researcher to compare the military personnel's privatized community satisfaction to that of military in non-privatized communities.

Environmental Characteristics

Six variables are used to control for different environmental characteristics of the housing community in which the respondents reside. These variables include landscape, office staff, maintenance, safety, parking, and unit quality. The following questions were used to create each variable:

Landscape: With regard to the appearance of the community, how satisfied are you with landscaping? Office Staff: How would you evaluate Installation Housing Office Management with regard to the following: Overall level and quality of service you are receiving?

Maintenance service: How would you rate your satisfaction with maintenance services work quality? Safety: How satisfied are you with the following features of the community: Safety?

Parking: How satisfied are you with the following features of the community: Parking? Unit

Quality: How would rate your satisfaction with the following characteristics of your home: Overall condition when you moved in?

James et al. (forthcoming) found these variables to have a high power of explanation when looking at whether someone would recommend the apartment complex to a friend. Through using these variables, the researcher was not only able to control for environmental characteristics, but also compare to the results to those from the private sector.

Demographic Characteristic

Age, race, and total housing units will be included in the model as demographic characteristics. The age variable will be constructed from the median age of the population in each county. The age variable will help to capture any life cycle occurrences in the counties that could be playing into the reasons why military personnel have chosen to live in military housing (Howell & Frese, 1983; Lu, 1999; McAuley & Nutty, 1985; Paulus et al., 1996). The race

variable will also be constructed from the percentage of the population in each racial category, which also can help control for some norms since having similar individuals living in the same area can produce higher satisfaction (Lu, 1999; Paulus et al., 1996). The total housing units will be included as a continuous variable and will help to control for the housing choices available for those in the military (Paulus et al., 1996).

Economic Characteristics

Percentage of population in the armed forces, family income and families below poverty level will be included in the model as economic characteristics. The percentage of population in the armed forces will once again help control for norms associated with having similar types of people live near. Income has been associated with a higher residential satisfaction among individuals. In communities where higher incomes are more prominent, housing could be geared towards higher income individuals, which could make finding affordable housing more difficult for military personnel. The income variable will be constructed from the per capita income of each community. In addition, the percentage of families below poverty level will also help control for both the incomes and the probable presence of affordable housing in the area surrounding the bases (Howell & Frese, 1983; McAuley & Nutty, 1985; Paulus et al, 1996; Lu, 1999; Molin & Timmermans, 2003).

Housing Characteristics

Housing tenure, as well as affordability of owning and renting housing, will be 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). This variable will be constructed as the percentage of individuals who rent. The percentage of the population who own will not be used because of multicollinearity problems. While no one in the sample own

their own homes, 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, as to whether 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).

Social Characteristics

Percentage of family households will be 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 will also be included in order to control for community attitude towards military. If the military branch chooses to locate privatized housing bases in the communities based on the communities' attitudes, bias can occur.

Hypotheses

According to the theoretical model proposed by Kahana et al. (2003), those living in environments that have higher congruence between personal preferences and environmental characteristics should have a higher residential satisfaction. Kahana et al. stated that residential satisfaction was formed through the congruence of personal preferences and environmental characteristics (P-E Fit). When there are discrepancies between personal preferences and environmental characteristics a problem in the individual's residential satisfaction arises. One of the main goals of the MHPI is to increase the variety of environmental characteristics to which the military personnel have access and thereby increase their PE-Fit.

H₁: Enlisted members living in privatized communities will have a significantly higher

residential satisfaction than enlisted members living in non-privatized communities.

In addition, as one's satisfaction with different environmental characteristics increase, the closer their PE-Fit becomes. This tightening of PE-Fit occurs as a result of their personal preferences and environmental characteristics become closer to being equal. James et al. (Forthcoming) has shown that landscaping, office staff, maintenance, safety, parking, and unit quality were all significantly positively related to overall satisfaction for residents living in multifamily housing. Therefore:

H_{2a}: Having a higher satisfaction with the housing community's landscaping will increase the overall residential satisfaction of the enlisted members.

H_{2b}: Having a higher satisfaction with the housing office staff will increase the overall satisfaction of the enlisted members.

H_{2c}: Having a higher satisfaction with the housing community's maintenance will increase the overall satisfaction of the enlisted members.

H_{2d}: Having a higher satisfaction with the housing community's safety will increase the overall satisfaction of the enlisted members.

H_{2e}: Having a higher satisfaction with the housing community's parking will increase the overall satisfaction of enlisted members.

H_{2f}: Having a higher satisfaction with the housing community's unit quality will increase the overall satisfaction of enlisted members.

Furthermore, one's personal characteristics influence his or her personal preferences for their housing environment. In turn, as personal characteristics shape an individual's personal preferences they simultaneously shape the individual's PE-Fit.

H_{3a}: The past empirically shown relationships between the demographic characteristics of age,

race, and housing choice to residential satisfaction will remain in the present research.

H_{3b}: The past empirically shown relationships between the economic characteristics of percent of population in the armed forces, family income, and families below poverty to residential satisfaction will remain in the present research.

H_{3c}: The past empirically shown relationships between the housing characteristics of choice as measured by housing tenure and affordability to residential satisfaction will remain in the present research.

H_{3d}: The past empirically shown relationships between the social characteristics of normality as measured by the percentage of family households in the community and percentage of veterans in the community to residential satisfaction will remain in the present research.

Models

The first set of models that will be estimated will utilize analysis of variance (ANOVA) on the residential satisfaction variables of the different community types. The ANOVA test will analyze the total variation, the variation within the sample, and the variation between the samples. The variations measured will be the residential satisfaction levels from military personnel living in privatized units vs. military personnel living outside privatized units. In order for the model assumptions to hold, the cases must be independent, the distribution must be normal, and variances must be homogeneous. This model will 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 that will be estimated are Ordinary Least Squares (OLS) models. The first OLS model will control for community environmental factors and is stated as follows:

$$\begin{aligned}
\textit{Recommend} = & \beta_0 + \beta_1 \textit{Community} + \beta_2 \textit{landscape} + \beta_3 \textit{officestaff} + \beta_4 \textit{maintenace} \\
& + \beta_5 \textit{safety} + \beta_6 \textit{parking} + \beta_7 \textit{unitquality} + \epsilon
\end{aligned}$$

where community is a dummy variable =1 if the community is privatized and =0 in the community is non-privatized.

The second OLS model will control for both community environmental factors and personal factors and is stated as follows:

$$\begin{aligned}
\textit{Recommend} = & \beta_0 + \beta_1 \textit{Community} + \beta_2 \textit{landscape} + \beta_3 \textit{officestaff} + \beta_4 \textit{maintenace} + \beta_5 \textit{safety} \\
& + \beta_6 \textit{parking} + \beta_7 \textit{unitquality} + D_i + E_i + S_i + H_i + \epsilon
\end{aligned}$$

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.

CHAPTER 4

RESULTS

This research has sought to fill a gap in the existing literature on the residential satisfaction of military personnel. With the government's implementation of the Military Housing Privatization Initiative (MHPI), the need for this research is more imperative. This program seeks to fill the gap in adequate affordable housing for military personnel that past governmental programs has caused. Past research has shown the past determinants of residential satisfaction of civilian populations to include income, housing tenure, race, tenure, life cycle, house size, neighborhoods, urban/ rural geography, and housing quality (Durband & Eckart, 1973; Francescato, 2002; Howell & Frese, 1983; Lu, 1999; McAuley & Nutty, 1985; Lu, 1999; Theodori, 2001). The unique factors that military face, including increased geographic mobility and deployment, show a need for this population to be researched separately. This research seeks to do so and in this chapter will look at the effects of living in different community types, as well as community characteristics on the overall satisfaction of military personnel.

Descriptive Statistics Analysis

The descriptive statistics analysis had a sample of 54 bases, with 8 bases having privatized units and 47 bases having non-privatized units. 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 *t*-values for privatized and non-privatized communities. Contrary to the researcher's hypothesis, the initial *t*-test shows that non-privatized communities had an overall

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

Variable Names	Private N=7		Non-Private N=47		P-Value
	Mean	Std. Deviation	Mean	Std. Deviation	
Recommend***	63.57	4.237	70.04	8.902	.0065
Landscaping***	62.43	3.408	68.06	8.881	.0042
Safety***	78.57	4.649	85.00	5.141	.0026
Parking***	63.43	5.740	70.00	7.647	.0086
Maintenance	77.57	3.599	79.64	5.772	.1128
Office Staff	70.43	5.711	71.83	6.555	.3491
Unit Quality***	62.00	3.600	68.89	6.304	.0038
White	80.08%	13.689	71.75%	18.633	.3278
Black	14.62%	13.330	13.60%	16.275	.5418
American Indian***	.32%	.203	1.45%	1.985	.0007
Asian	3.30%	2.996	2.61%	2.742	.6467
Hispanic**	7.71%	8.700	18.75%	24.35	.0168
Age	33.56	3.554	34.65	2.891	.6316
Total Housing Units	244062	298180	237524	527481	.9853
Armed Forces**	1.30%	1.062	2.67%	2.483	.0136
Income*	\$25700	5304	\$22255	4944	.0936
Fam. below Poverty*	7.50%	3.772	10.90%	3.962	.0563
Renters	12.0%	3.346	13.15%	3.108	.6441
Renter Affordability	14.51%	1.228	4.31%	1.705	.8867

Table 2. (Continued)

Descriptive Statistics of Privatized and Non-privatized Communities

Variable Names	Privatized N=7		Non-Privatized N=47		P-Value
	Mean	Std. Deviation	Mean	Std. Deviation	
Owner Affordability	4.20%	1.814	14.04%	2.757	.4171
Family Households	70.22%	5.677	66.20%	24.273	.4399
Veterans	10.12%	2.837	11.39%	4.542	.2529

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

higher level of satisfaction (70.04 versus 63.57), as shown through their recommendation scores which was significant at the 1% level. 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 between the communities for landscaping (62.43 versus 68.06), safety (78.57 versus 85.00), parking (63.43 versus 70.00), and unit quality (62.00 versus 68.89). These initial findings tend to suggest that military personnel living in non-privatized units tend to have a higher satisfaction with the majority of community characteristics when compared to those living in privatized communities.

Counties that contained privatized communities had a larger white population percentage, black population percentage and Asian (80.08% versus 71.75%, 14.62% versus 13.60%, and 3.30% versus 2.61%) than non-privatized communities; however, the means between the two communities were not statistically different. Non-privatized counties had a statistically significantly higher percentage population of American Indians and Hispanics (1.45% versus .32%; and 18.75% versus 7.71%). The median age (33.56 versus 34.65), total housing units

(244,062 versus 237,534), percentage of renters (12.0% versus 13.15%), percentage of owners who cannot afford housing (4.20% versus 14.04%), percentage of renters who cannot afford housing (14.51% versus 4.31%), percentage of family households (70.22% versus 66.20%), and percentage of veterans in the population (10.12% versus 11.39%) did not have significantly different means between privatized and non-privatized counties. Privatized housing counties had a significantly lower armed force population (1.30% versus 2.67%), a significantly higher per capita income (\$25,700 versus \$ 22,255) and a significantly lower percentage of the family populations below poverty (7.50% versus 10.90%).

ANOVA Results

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 at the 10% level. This means that 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 researcher’s hypothesis that privatized communities would have a higher overall satisfaction.

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

Ordinary Least Squares Results

The first OLS model analyzed the effects of living in a privatized unit on the base's recommendation score without controlling for other variables. Similar to both the *t*-test and ANOVA results, when no other variables are held constant the results indicate that living in a privatized community decreases the base's recommendation score by -6.4711. This indicates that living in a privatized community decreases the base's overall satisfaction.

Controlling for Community Characteristics

Table 4 shows the OLS results for the effects of community type on recommendation level, while controlling only for community 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 by the researcher's hypothesis that stated having a higher satisfaction with the housing community's landscaping will increase the overall residential satisfaction of the enlisted members, landscaping was found to have a significantly positive relationship with the recommendation score of residents at the 1% level. Contrary to the researcher's hypothesis that predicted having a higher satisfaction with the housing communities' landscaping, safety, and parking will increase the overall residential satisfaction of the enlisted members; safety, parking, and maintenance were shown to have no significant relationship with the recommendation score. In addition, the results showed office staff to have a significantly positive relationship with the recommendation score of residents at the 1% level. This also confirmed the researcher's hypothesis. Furthermore, the researcher's final hypothesis of a positive relationship between unit quality and overall satisfaction was shown to be correct at the 5% level.

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

Variable	Coefficient	P-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.

Controlling for both community and county characteristics

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 that once again 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 are all significantly positively related to the base's recommendation score. Office staff is also significant at the 1% level. Unit quality is significant at the 5% level. Once again, safety, parking, and maintenance do not significantly relate to the base's recommendation score. Furthermore, contrary to the researcher's hypothesis that control variable relationships would hold, none of the demographic, economic, housing or social characteristics had a significant relationship with the base's recommendation score.

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

Table 5. (continued)

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

Variable	Coefficient	P-Value	Standard Error
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 of Results

The overall results of the study indicate that the researcher's first hypothesis that military personnel living in privatized housing communities would have a higher overall satisfaction compared to those living in non-privatized housing, did not hold. The results indicate the opposite relationship existed, with those living in non-privatized housing having a higher overall satisfaction level. The researcher's second hypothesis, that environmental characteristics would have a positive relationship with resident satisfaction, held for the landscaping, office staff, and unit quality variables, but did not hold for the safety, parking, and maintenance. Finally, the researcher's third hypothesis, that control variables past relationships would hold in the given models, was not confirmed in the study.

CHAPTER 5

CONCLUSIONS, LIMITATIONS, AND FUTURE RESEARCH

Conclusions

The results of the analysis of the residential satisfaction of military personnel showed that the type of community the resident lived in had no bearing on the overall satisfaction as measured by the recommendation variable. While the initial ANOVA testing showed non-privatized status had a significantly higher residential satisfaction, 70.04 vs. 63.57, the significance level did not remain after environmental characteristics were controlled for in the models. This finding was not consistent with the researcher's hypothesis that those who live in privatized housing would have a higher overall satisfaction compared to those who lived in non-privatized housing. This finding was similar to the Paulus et al. (1996) study that found no difference in residential satisfaction based on place of residents as they had hypothesized. These findings could suggest that the DOD efforts in improving military housing through privatization are not showing progress presently, or these findings could be driven by unmeasurable factors. If the DOD chose to put privatized units on bases with the worst previous housing stock, the results could be biased downwards, resulting in no effect. While these findings are interesting, one must be careful to interpret their meaning. Both aggregate data and endogeneity problems could make the results misleading. For example, the ability for individual military personnel to choose to live in privatized units also creates endogeneity problems if they possess significantly different characteristics that affect their satisfaction when compared to those who live on base housing.

Similar to the James et al. (forthcoming) paper, office staff were found to have the greatest influence on the recommendation score. This relationship remained significant even after county factors were controlled for in the model and were consistent with the researcher's hypothesis. While this finding is similar to the James et al. (forthcoming) finding, it is not congruent with the theory of PE-Fit, which stated that an individual's residential satisfaction is formed through the congruence of personal preferences and environmental characteristics (Kahana et al. 2003). The determinants of this congruence include the physical domain of the residents, as well as the individual's demographic characteristics. The PE-fit theory does not include office staff or other non-physical characteristics of the residence as a factor in determining one's residential satisfaction. With customer service having been shown to be an important factor in overall satisfaction and the result showing the significance of office staff on the military personnel's residential satisfaction, there may be a need to remodel the theory to include non-physical attributes in order to gain a better understanding of residential satisfaction (Blodgett, Wakefield, & Barnes, 1995; Cronin, Brady, & Cronin, 2000; Wagenheim & Reurink, 1991). James (2007), found the importance of office staff to renters stems from the resident's feeling of control over their environment. The more control residents feel they have through the utilization of their office staff, the higher their satisfaction.

Additionally, landscaping and unit quality were also found to significantly positively influence the base's overall recommendation score. These relationships also remained constant with the inclusion of the county characteristics variables and matched the researcher's hypothesis. Unit quality has in past research been one of the key determinants of residential satisfaction among the majority of populations (Durband & Eckart, 1973; Francescato, 2002; Howell & Frese, 1983; Lu, 1999; McAuley & Nutty, 1985; Paris and Kangari, 2005; Theodori,

2001), and was shown to influence the military population in the Paulus et al. (1996) study. These factors taken together 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 was not researched in the Paulus et al. (1996) study, so little was known about the importance of office staff interaction with military personnel. These results can be used by property managers when evaluating the importance of different characteristics of their communities. Focusing on having an office staff that meets the needs of the residents might prove more beneficial overall than having a well-manicured lawn.

A surprising result was the lack of influence safety, maintenance, and parking had on the resident's residential satisfaction, as they were hypothesized to do. Past research into civilian residential satisfaction found these factors to significantly influence residential satisfaction. The reason for the difference between the significance of these factors on military and civilian residents could stem from these population's 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 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.

Unlike the researcher's hypotheses, the results indicated that all of the demographic, economic, housing, or social characteristics of the county had no relationship with the base's recommendation score. While past research has shown that age, race, housing tenure, marital

status and educational attainment are significant determinants of satisfaction for individual civilians, this does not seem to be the case for military residents. This lack of significance could be due to the military residents having different personal characteristics compared to civilians. On the other hand, the lack of significance in the results could stem from not having individual data for the bases or residents. Furthermore, the small number of observations could have made noticing small variations impossible. Overall, these results show that county level characteristics seem to have no correlation with the residential satisfaction of military personnel living within the community.

The results of this research are interesting when taken by themselves, as well as when comparing them to the results of civilian residential satisfaction determinants. 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 instance of wanting a quality relationship with their housing management staff. However, military personnel also differ from their civilian counterparts in the importance of safety and maintenance. While these results are interesting, they must be met with caution and a great deal of research is still needed in the area of military residential satisfaction, as well as the effectiveness of the privatization program, which is becoming implemented on more military bases overtime.

Limitations

While the research's findings offer further insight into military personnel's residential satisfaction, it is important to recognize the limitations of both the data and the models. One major weakness of the chosen data set is the lack of micro-level information on military

personnel's residential satisfaction and personal characteristics. Without micro-level information, this study was unable to compare individual effects and control for individual characteristics. This lack of micro-level data can lead to the ecological fallacy, whereby members of a group are assumed to exhibit characteristics of the group at large (Kramer, 1983). One must be careful when applying the aggregate results at the individual level. Even though correlations are shown at the aggregate level, the same findings might not apply among the related individual level variables (Lichtman, 1974). For instance, while safety was not shown to be correlated to whether residents would recommend their communities at the aggregate level, it could still be found to be significantly related at the individual level. This can be due to the concealing of small variations that are not visible at the aggregate level through the usage of averages (Templeton & Lawlor, 1981).

In addition, the data available contain a small amount of observations, which lowers the power of the model. This is especially the case of the low number of privatized communities (7) compared to the non-privatized communities (47). The lower power of the model makes detecting small variations among the data harder to detect; therefore, variables that might be correlated among data with more observations can show no correlation. The greater number of observations, the more likely small variations among the data will present itself among analysis. Furthermore, the small amount of observations also decreases the amount of variables the model can control for due to the lack of degrees of freedom. The lack of a large amount of observations makes controlling for all variables theoretically related impossible.

Another limitation with the data is the possibility exists that those who participated in the study felt as though they must score satisfaction variables higher. If this higher selection did occur, the data presented could be biased upward to a higher satisfaction. This could present a

greater problem if those who felt pressured to do so were more likely to live in one type of community. While this could pose a problem, the researcher does not believe this occurred due to the large amount of low scores that were presented by the residents in both types of communities.

The lack of longitudinal data is another limitation of this study. Without longitudinal data, the research is unable to determine if the residents of the same community are more or less satisfied with their residence. The researcher, instead, had to use cross-sectional data on residents living in the different types of communities in order to make inferences. Not having longitudinal data makes determining causal relationships less likely.

The use of both an Analysis of Variance (ANOVA) and an OLS regression on cross-sectional data design creates problems with both external and internal validity. One of the major threats to the external validity of the design is that the results cannot be generalized to military families who either live in market-based housing or own their home versus those who live in military housing. The threats to internal validity are great and not easily correctable, but require mention nonetheless. The ability of the base members being able to select where they live poses a problem of bias for both the ANOVA and the OLS regression. In addition, the base's ability to choose whether to participate in the study can also present a bias problem. If bases that have privatized units possess different immeasurable characteristics that affect both why they have privatized housing and residential satisfaction, bias can occur. Furthermore, bias can also occur if bases that chose to participate in the study have different characteristics than those that chose not to participate. For example, if bases that chose to participate in the study had a large population of military personnel that had been deployed to war zones, the effect of safety as a determinant of recommendation could be biased downward.

While these limitations may seem considerable, the importance of this study is noteworthy. Little is known about the satisfaction of military personnel and what their overall determinants of satisfaction consist of compared to civilian populations. In addition, no research has yet been done to compare the satisfaction of those living in new privatized units to those living in non-privatized units. This research adds to the body of knowledge on both residential satisfaction and military behavior.

Future Research

As mentioned, the military has long been an ignored population in research. The difference in the military's characteristics makes examining at this population separately a much-needed addition to research. Understanding both the need to privatize military housing and residential satisfaction as a whole would help further the knowledge of this population's characteristics. The areas of needed research will be discussed further in the following paragraph.

A great deal of research is still needed in both the area of military residential satisfaction and the effectiveness of military privatized housing. An addition to the literature that future research should make is the use of individual level data in the analysis of privatized communities. The use of individual data would also add to the body of knowledge not only through the comparison of the results to aggregate level data, but also show if there are small variations that were not visible in the present research. Additionally, future research should also use longitudinal data in order to better determine both the factors that influence military personnel's residential satisfaction and the effectiveness of privatized communities. Furthermore, additional research should include military personnel who both own their home and who live in market units. 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.

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Appendix A

University of Georgia Non-Human Subjects Approval

Message Contents

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Delete Prev Next Reply/All Forward/Inline Open Inbox 57 of 62 Go to Move Copy Inbox

Date: Wed 26 Mar 20:13:50 EDT 2008
From: "Benilda Pooser" <bpooser@uga.edu> [Add To Address Book](#) | [This is Spam](#)
Subject: Project Review - Robinson
To: "KATIE ELIZABETH ROBINSON" <kerdj1@uga.edu>
Cc: "carswell@fcs.uga.edu" <carswell@fcs.uga.edu>

PROJECT NUMBER: 2008-10718-0
TITLE OF STUDY: Residential Satisfaction of Military Personnel Living in Privatized and Non-Privatized Housing
PRINCIPAL INVESTIGATOR: Ms. Katie E. Robinson

Dear Katie:

The study identified above has been reviewed by the University of Georgia (UGA) Human Subjects Office. It has been determined that this proposed analysis of existing data that are not individually-identifiable does not meet the criteria as research involving human subjects per 45 CFR 46.102, and therefore does not require review and approval by the UGA Institutional Review Board (IRB). You may now begin this study. This opinion covers only this request and does not include any other future research or activity that may involve human participants. Please notify our office if the project changes to assure that these changes do not affect the original determination.

You should be receiving your signed *Request for Determination of Not Human Subject Research Form* by campus mail. Please keep it for your records.

Thank you for providing this information to us, and please feel free to contact our office for any research endeavors involving human subjects that you may be conducting in the future.

Best regards,

Benil

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