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**U.S. Army Research Institute
for the Behavioral and Social Sciences**

Research Report 1585

The Economic and Noneconomic Determinants of Retention in the Reserve/Guard Units

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Santa Clara University

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U.S. Army Research Institute

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91-10940



April 1991

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REPORT DOCUMENTATION PAGE

Form Approved
OMB No. 0704-0188

1a. REPORT SECURITY CLASSIFICATION Unclassified		1b. RESTRICTIVE MARKINGS --	
2a. SECURITY CLASSIFICATION AUTHORITY --		3. DISTRIBUTION/AVAILABILITY OF REPORT Available for public release; distribution is unlimited.	
2b. DECLASSIFICATION/DOWNGRADING SCHEDULE --			
4. PERFORMING ORGANIZATION REPORT NUMBER(S) ARI Research Report 1585		5. MONITORING ORGANIZATION REPORT NUMBER(S) --	
6a. NAME OF PERFORMING ORGANIZATION U.S. Army Research Institute	6b. OFFICE SYMBOL (If applicable) PERI-RP	7a. NAME OF MONITORING ORGANIZATION --	
6c. ADDRESS (City, State, and ZIP Code) 5001 Eisenhower Avenue Alexandria, VA 22333-5600		7b. ADDRESS (City, State, and ZIP Code) --	
8a. NAME OF FUNDING/SPONSORING ORGANIZATION U.S. Army Research Institute for the Behavioral and Social Sciences	8b. OFFICE SYMBOL (If applicable) PERI-R	9. PROCUREMENT INSTRUMENT IDENTIFICATION NUMBER --	
8c. ADDRESS (City, State, and ZIP Code) 5001 Eisenhower Avenue Alexandria, VA 22333-5600		10. SOURCE OF FUNDING NUMBERS	
		PROGRAM ELEMENT NO. 63007A	PROJECT NO. 792
		TASK NO. 2301	WORK UNIT ACCESSION NO. H1
11. TITLE (Include Security Classification) The Economic and Noneconomic Determinants of Retention in the Reserve/Guard Units			
12. PERSONAL AUTHOR(S) Fugita, Stephen S. (Santa Clara University); and Lakhani, Hyder A.			
13a. TYPE OF REPORT Final	13b. TIME COVERED FROM 90/10 TO 91/03	14. DATE OF REPORT (Year, Month, Day) 1991, April	15. PAGE COUNT
16. SUPPLEMENTARY NOTATION --			
17. COSATI CODES		18. SUBJECT TERMS (Continue on reverse if necessary and identify by block number)	
FIELD	GROUP	SUB-GROUP	
			Reserve/Guard retention
			Spouse attitude,
			Spouse earnings,
			Time demands
			Reserve/Guard earnings
			Civilian earnings
19. ABSTRACT (Continue on reverse if necessary and identify by block number) This research predicts likelihood of Reserve/Guard retention based on military earnings, civilian earnings, spouse's earnings, spouse's attitude toward retention, other income, and total years of service, including active duty service. The data are developed from Defense Manpower Data Center's (1987) surveys of Reserve/Guard officers and enlisted personnel. The results reveal that retention can be increased by increasing Reserve/Guard pay and allowances or changing Reservist/Guard spouse's attitude toward retention. (25) * Military reservist, * Personnel retention, * Guard, >			
20. DISTRIBUTION/AVAILABILITY OF ABSTRACT <input checked="" type="checkbox"/> UNCLASSIFIED/UNLIMITED <input type="checkbox"/> SAME AS RPT. <input type="checkbox"/> DTIC USERS		21. ABSTRACT SECURITY CLASSIFICATION Unclassified	
22a. NAME OF RESPONSIBLE INDIVIDUAL Hyder A. Lakhani		22b. TELEPHONE (Include Area Code) (703) 274-8119	22c. OFFICE SYMBOL PERI-RP

Research Report 1585

The Economic and Noneconomic Determinants of Retention in the Reserve/Guard Units

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Office, Deputy Chief of Staff for Personnel

Department of the Army

April 1991

**Army Project Number
2Q263007A792**

Manpower, Personnel, and Training

Approved for public release; distribution is unlimited.

FOREWORD

The Personnel Utilization Technical Area of the U.S. Army Research Institute for the Behavioral and Social Sciences (ARI) conducts research in the areas of Total Army retention, performance, and family factors. Questions have recently arisen regarding the Army's ability to predict retention in the Reserve/Guard units.

This report, which was sponsored by the Army Community and Family Support Center, quantifies the economic and noneconomic predictors, including family factors, of retention of Guard/Reservists. Progress on this research was verbally briefed to Lieutenant Colonel Furukawa and Dr. Richard Fafara, Army Community and Family Support Center. The sponsors showed interest in using some of the results of this research for increasing retention of Guard/Reservists.

The results of this research help predict the effect on retention probabilities of servicemen in Reserve/Guard units of such family factors as spouse's attitude toward Reservist/Guard's participation in Reserve/Guard units, spouse earnings, and military earnings.



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THE ECONOMIC AND NONECONOMIC DETERMINANTS OF RETENTION IN THE RESERVE/GUARD UNITS

EXECUTIVE SUMMARY

Requirements:

The U.S. Army Research Institute for the Behavioral and Social Sciences (ARI) conducts research on manpower, personnel, training, and performance issues of significance and interest to the U.S. Army. Questions have been raised about the Army's ability to predict and retain servicemen in Reserve/Guard units.

Procedure:

The authors used data from the Defense Manpower Data Center's (1987) Reserve Component surveys. The sample of 7,525 reserve officers and 29,783 enlisted Reservists/Guards is used to estimate hierarchical regression equations of retention intentions. The predictors include Reserve/Guard earnings, civilian earnings, other income, spouse's earnings, spouse's attitude toward Reservist/Guard's retention intention, and years of service, including active duty and Reserve/Guard service.

Findings:

The results suggest that an increase in spouse's positive attitude toward retention, Reserve/Guard earnings, and years of service tends to increase the probability of retention of both officer and enlisted Reservist/Guard. The beta coefficients for spouse's attitude toward retention for both the groups are almost twice as large as the beta coefficients for the earnings variables. An increase in civilian earnings tends to reduce retention probabilities of both the groups, but this relationship is not statistically significant.

Utilization of Findings:

This research suggests that, in order to increase retention of Reservist/Guard, the policy makers should consider increasing Reserve/Guard earnings and changing spouse's attitude toward retention intention of Reservist/Guard.

THE ECONOMIC AND NONECONOMIC DETERMINANTS OF RETENTION IN THE RESERVE/GUARD UNITS

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THE ECONOMIC AND NONECONOMIC DETERMINANTS OF RETENTION IN THE RESERVES/GUARD UNITS

Retention Problem

Under the current Total Force Policy, the Reserve component is given a much greater and an increasing emphasis in meeting national defense requirements than in the past. The size of this component more than doubled: from about 823,000 in Fiscal Year (FY) 1976 to 1.7 million in FY 1990 (Department of Defense, 1990). The Army Reserve component is the largest, about 750,000, of this total Reserve/Guard force of 1.7 million comprising the Army, Navy, Air Force and the Marines. The Army Reserve component consists of Army Guards, whose missions are predominantly combat, and Army Reserve, whose missions are mainly combat support (Binkin & Kaufmann, 1990, p. 5). Not only are Reserve units activated when many active duty units are committed, as they are now structurally integrated with the active forces, but in numerous support areas, the majority of the services' assets are only in the reserves. For example, the Navy's Selected Reserve units provide 100% of its mine-sweeping capability. Similarly, the Army's MASH (Mobile Army Surgical Hospital) units were some of the first to be deployed in Operation Desert Shield. Since most of the Reserve/Guard component is in logistical support units, these units are the first to be deployed and the last to return from deployment as they are required to bring home other forces and equipment. The deployment of Reserve/Guard personnel in the Persian Gulf theater was one out of every two active force deployed, e.g., 220,000 out of 430,000 (Smith, 1991). Almost one-half (100,000) of this deployment was contributed by Army Reserve/Guard. One of the reasons for increasing reliance on Reserve/Guard force is its cost effectiveness. For example, Binkin and Kaufmann (1990, p. 29-30) report that in FY 1983, "the average per capita payroll cost for an active Army soldier was \$15,252, compared with \$2,073 and \$2,265 for members of the Army Reserve and Army National Guard, respectively."

The heavy reliance on Reserve forces referred to above has been a relatively recent initiative. After the removal of the draft and changeover to the All-Volunteer Force (AVF) in January 1973, there was a precipitous drop in Reserve strength, perhaps because joining the Reserve/Guard units was no longer needed as an alternative to being drafted in the active force. In response to this shortage, several pay increases and initiation of payment of selective reenlistment bonuses were implemented in mid-1970s. As a consequence of these increases, the size of the Reserve force increased and is currently at its highest level (1.7 million) since the Korean War. Despite these monetary incentives, however, retention is a problem because the current

overall annual separation rate for Reserve/Guard is 25%. The specific separation rate is 40% for those with four years of prior active military service at accession and 30% for those with ten or more years of service. "The difference is even more pronounced for Army Reserve: 50% for those with less than four years of service and 30% for those with ten or more years of prior service" (Grissmer et al., 1989, p. 76). This problem is likely to be accentuated due to deployment of this component to the Persian Gulf war and the concomitant loss in their civilian pay and benefits. For example, Swardson (1991) reports that nearly one in five employers surveyed in the Washington-Baltimore area have cut off all pay and health benefits for employees who have been called to active Reserve duty in the Persian Gulf. Jordan (1991) reports that Army Reserve recruitment declined by 23% per month of its recruiting quota in December and January and adds that Rep. G.V. "Sonny" Montgomery, a senior member of the House Armed Services Committee, expects the Reserve/Guard to lose 20% of their manpower after the war is over. Jordan (1991) also notes that those who will separate from Reserve/Guard services are likely to be the most highly trained personnel such as doctors who had their civilian practices ruined due to deployment. Also, the proposed downsizing of the total force is likely to increase Reserve/Guard separations. For example, the Department of Defense's five-year plan to cut half a million troops and 25% of its budget is now spread equally across active units and Reserves (Gellman, 1991).

An objective of this research is to determine the influence of some economic and non-economic variables on retention intentions of Selected Reservists/Guard in all the four branches of military service. The economic variables included in this analysis are four different sources of family income. The non-economic variables are a social psychological variable for the spousal attitude toward the Guard/Reservist's likelihood of staying in the military and a variable of a Reservist/Guard's taste for military life. Information about these issues is helpful in planning programs to retain personnel in the Reserve/Guard force.

Literature Review and Theoretical Framework

Literature Review

The existing empirical economic studies on retention in the Reserve/Guard units are prone to five major limitations due to non-availability of data. The first limitation is that these studies include only economic variables and exclude non-economic variables from their equations so that their parameter estimates are prone to omitted variable bias. Second, the data used for the economic variables, such as the military or the civilian

earnings, are either proxy variables for the active force instead of the specific Reserve/Guard earnings, or are aggregates for the states instead of individual observations for the Reservist/Guard. Third, the results obtained in most of the studies are not statistically significant ($p < .10$). Fourth, the economic variables include only the earnings of the Reservist/Guard and exclude earnings of their spouses. We believe that spouse earnings are relevant for the retention analysis because the labor force participation rate of women between the ages of 25 and 54 more than doubled from 30% in 1946 to over 65% in 1987 and is growing (Shank, 1988). Fifth, the time periods analyzed in some of the studies are not comparable with the more recent periods of the AVF era. For example, a major study by Rostker (1974) was completed during the first year of the AVF, that is, immediately after the end of the war in Vietnam when there was substantial downsizing of the Reserve/Guard personnel due to departure of the draftees. We review only five of these studies in the following discussion to briefly comment on their data limitations and results. The non-economic studies are not reviewed by us because most of them are descriptive instead of quantitative and do not use economic policy variables such as Reserve/Guard pay, their civilian earnings and spouse earnings to predict retention (e.g., see Wilson, 1985).

First, Rostker and Shishko (1973) and Shisko and Rostker (1976) pioneered an economic theory of moonlighting or the relationship between primary and secondary (moonlighting) labor markets and Rostker (1974) applied it to the Air Reserve forces. The theory of moonlighting predicts that an increase in primary wage, such as civilian earnings of a Reserve/Guard, tends to increase his or her supply of labor in the primary or civilian occupation and decreases it in the secondary or Reserve/Guard occupation, other things being equal. An increase in Reserve/Guard earnings, however, tends to increase the supply of labor in the secondary or Reserve/Guard occupation. Rostker (1974) estimated enlisted supply of Air Force Reserve during the draft period of calendar years 1968 and 1969 and separately for the first year of AVF, namely 1973. Rostker's enlistment data are confounded with the period of draft during 1968 and 1969 and with the end of the draft in 1973. Moxon (1985) reports that before 1973, long lines of draft-eligible men waited to join Reserve and Guard units because they recognized these services as a way to satisfy their military obligations and concurrently pursue their civilian careers. "They also realized that the Reserve forces would not be activated en masse to fight in Vietnam. Estimates show that the draft motivated approximately 80% of the enlistments in the Air National Guard and the Air Force Reserve during this period (Moxon, 1985, p.99)." In 1973, with the beginning of the All Volunteer Force, these draft-

motivated Reserve/Guard personnel left in droves as their Reserve/Guard obligations ended. For example, the total Reserve/Guard strength decreased considerably from 978,000 in 1971 to 919,000 in 1973 (Brinkerhoff & Grismer, 1984).

For the draft era, Rostker (1974) obtained a positive instead of a negative regression coefficient for civilian earnings and none of the coefficients, except for regional dummy variables, was significant ($p < .10$). For the first year of the AVF era, Rostker (1974) reports the expected negative elasticity for the civilian earnings and a positive elasticity for the Reserve earnings but neither the regression coefficients nor their statistical significance are reported. These results are not likely to be useful for the later years of the AVF era because, as noted above, this was not a normal period as there was considerable turmoil during this first year of the AVF. The civilian earnings data are not discussed by Rostker (1974) and do not appear to be the primary earnings of the Air Force Reservists. Shishko and Rostker (1976) analyze moonlighting wages of civilian workers in the Panel Survey of Income Dynamics data of University of Michigan instead of civilian earnings of Air Force Reservists. Amemiya (1984, p. 41) criticized the methods used in this paper as follows:

"They estimated the wage equation (101) by least squares (yielding inconsistent estimates) and estimated the hours equation (104) by the Tobit MLE (Maximum Likelihood Estimate) after replacing W_i by its least squares predictor. There is little justification for the second procedure even if the first yielded consistent estimates."

Second, McNaught (1981a, 1981b) related participation in Navy Selected Reserve to civilian and military earnings, unemployment rate, Reserve opportunities, and cost of travel to the drill unit. The data used are, however, aggregate state level observations. For example, travel cost to the drill unit is substituted by the state's urban density and Reserve opportunities are approximated by the percent of state's population that participated in the Reserve units, as of the beginning of July 1977. None of these variables is statistically significant.

Third, Quester (1983) used the appropriate individual instead of aggregate level data and relates reenlistment in the Navy Selected Reserves to military earnings and unemployment rate. While an expected positive and statistically significant relationship is obtained for military earnings, the data used for this variable are not the Reserve/Guard earnings but are proxy data for earnings of the active force, namely, the percentage change in the Active Force military wage divided by the percentage change in the Consumer Price Index over the period 1977-80.

Fourth, Clay-Mendez (1983) relates first-year attrition (or non-retention) of non-prior service Naval Selected Reserve personnel to, among other, Reserve earnings. The Reserve earnings variable is, however, a composite of pay grade, length of service and average military pay. The length of service component includes "taste for military service" and hence is not a pure monetary variable.

Fifth, Regets (1990) hypothesized Reserve/Guard participation in terms of a theory of compensated leisure instead of the theory of moonlighting. He notes that the Reservists are not free to provide flexible hours of labor, as is assumed in a moonlighting theory. Instead, he adds, that the Reservists/Guard are compensated for sacrificing their leisure on the weekends. He regressed reenlistment of Select Reserves in the Navy to imputed civilian earnings, reserve drill pay, unemployment, age, education, and civilian experience. The imputed civilian earnings are, once again, not the observed earnings of the Reservists but are imputed from comparable cohorts in the Survey of Income and Program Participation database of the Bureau of the Census.

Detailed critiques and a proposed theoretical outline of most of the preceding and other studies are available in Cox and Lakhani (1985).

Theoretical Framework

The economic theory of supply of labor by Guard/Reservist suggest that an increase in military wage results in an increase in the supply of retention labor. As noted above, this theory is validated either as a moonlighting model (Shishko and Rostker, 1976) in which the supply of labor in a secondary job market is flexible and increases with an increase in moonlighting wage and decreases with an increase in primary wage, or as a model of volunteerism or compensated leisure (Regets, 1990) in which the Reservist/Guard is not free to supply flexible work hours. The institutional requirement for Reserve/Guard has fixed the supply of labor at one week-end per month and an annual training of two weeks per year, usually in the summer. Regets (1990, p.11) shows that the mathematical relationship of military wage to supply of retention labor under volunteerism is also positive, "assuming that there is only a weak positive relationship between the alternative wage for Reserve service and the primary wage." The "weak positive" relationship between the primary and the secondary wage implies, according to Regets (1990), that Reserve/Guard participation can be explained by intangible benefits such as a sense of national service, camaraderie, or a taste for military life. Regets (1990) adds that in a 1975 survey of non-prior-service Marine Corps Reservists, 67% listed "To be a Marine" as an important motivation for joining versus 41% for pay.

Regets (1990) also shows that civilian earnings are related negatively to retention because civilian earnings are the opportunity cost of hours spent in Reserve/Guard duties. The moonlighting theory also predicts a negative relationship of Reserve/Guard retention to civilian pay because an increase in civilian pay generates positive income effect for consumption of leisure and a corresponding reduction in the supply of retention hours.

An increase in non-labor income, such as income from investment, is expected to be positively related to the supply of retention. Regets (1990) shows that under the model of volunteerism, a positive relationship is expected since Reserve/Guard service provides a positive price.

The conceptual framework for inclusion of spouse's earnings is based on the recently developed theory of family income rather than individual income as a determinant of retention in the active military force (Smith & Goon, 1987; Hogan, 1990). Smith and Goon (1987) demonstrate that an increase in spouse employment, and hence earnings, tends to reduce retention intentions of officers in the active force. Spouse earnings are expected to be negatively related to retention intentions in the Reserve/Guard also, because the value of leisure increases with an increase in family income and this tends to stop the supply of labor to Reserve/Guard units by quitting, because supply of flexible labor is not permissible. We believe that the theory of family income is more relevant for the Reservist/Guard personnel because their spouses, unlike the spouses of the active duty personnel, are not subjected to transfer for permanent change of station duties every two years so that these spouses can continue to work in career progression jobs. The spouses of Reserve/Guard personnel are, therefore, more likely to be employed than the spouses of active duty personnel.

We use Wilensky's (1960) social psychological theory to hypothesize the effect of spouse's or wife's attitude toward retention of Reservist/Guard. Her attitude toward his retention decision can range from very unfavorable to very favorable. It depends on her perception of the effect of his work life on family life. Wilensky (1960) suggests three alternative outcomes of the nature of relationships between work life and family life: spillover, compensation and segmentation. The spillover relationship indicates a positive relationship, that is, satisfaction (or dissatisfaction) with work life spills over into satisfaction (or dissatisfaction) with family life. This hypothesis has been empirically validated for the active Army (Lakhani, 1989) and hence is hypothesized to be valid for Reserve/Guard force. The compensation thesis suggests that there is a negative relationship between work life and family life so that a dissatisfied worker finds compensation in family life

activities. The segmentation hypothesis states that people lead their work and family lives in relatively discrete segments with little spillover and little need for compensation.

The institutional structure of the Reserve/Guard service and an individual's taste for military life requires that we statistically control for this influence on retention intentions. The institution of the Reserve/Guard service provides for earning of retirement points which can be added to the retirement points earned during active service. Therefore, Marquis and Kirby (1989) note that prior service personnel constitute a little over one-half of all enlisted accession into the Reserve component of the four services each year. The prior service Reserve/Guard force is likely to have higher retention intentions relative to non-prior service component because of continuation of retirement benefits as well as the development of taste for military service during their active duties. This seniority variable is also likely to be confounded with the military pay variable because of seniority imparted in the Reserve/Guard service. We believe that a separate designation of this variable, measured in terms of total years of service in the active and Reserve/Guard units, would help statistically control for the effect of prior service on retention intentions. Such a statistical control would provide the net effect of such policy variables as Reserve/Guard earnings on their retention probabilities.

Data

The database used in this analysis is the Department of Defense, Defense Manpower Data Center's (1987) Reserve Components Surveys. The survey data used by us is a 10% random sample comprising 12,000 officers and 52,000 enlisted personnel drawn from a population of about one million Reserve/Guard personnel in the Reserve Component Common Personnel Data System. Surveys were mailed in February 1986 and returned by June 1986. The adjusted response rate (i.e. adjusted by excluding non-respondents who were no longer with the Reserve/Guard units as of the date of the survey mailout, namely, February 1986) was 75% for officers and 65% for enlisted personnel. This database has the appropriate individual earnings and social psychological variables.

We developed civilian earnings data from the question: "During 1985, what was the total amount that you earned from all civilian jobs or your own business before taxes and other deductions? ... Include commissions, tips, or bonuses. Give your best estimate." The values of this variable are continuous in dollar units and range from zero dollars to \$99,999, with an additional entry of "more than \$100,000". We report this and other earnings variables in thousands of dollars. The spouse's

earnings variable is developed from a similar question on the respondent's spouse. The values of this variable also range from zero dollars to over \$100,000.

The "other income" of the family comprises income, other than wages and salaries, including income from interest and dividends on savings; stocks, bonds, and other investments; alimony, child support or pensions; unemployment or worker's compensation; veterans benefits; GI Bill benefits; social security benefits; supplemental social security income; public welfare or assistance; WIC (women, infants, and children's food programs); and government food stamps. The values of this variable range from zero dollars to \$9,999. The military earnings of the Reserve/Guard personnel are obtained from responses to the question: "For all of 1985, what was your total Guard/Reserve income BEFORE taxes and deduction? Include any pay from drills, Annual Training/ACDUTRA (active duty for training), Bonuses, and any call-ups or other active duty or active duty for training." The values of this variable vary from zero to "over \$100,000."

The variable for spouse attitude toward retention is developed from the question: "What is your spouse's overall attitude toward your participation in the Guard/Reserve?." The five-point response scale varied from very favorable to very unfavorable. We reversed this scale and hypothesized that if a spouse's attitude toward participation in the Guard/Reserve is positive, the Reservist/Guard is likely to stay. The variable for total years of service is developed by adding the number of years in active duty and in the Guard/Reserve. Finally, the dependent variable of retention intention variable is developed from the question: "How likely are you to reenlist or extend at the end of your current term of service? Assume that all special pays which you currently receive are still available." The responses were scaled from "No chance" (0 in 10) to "Certain" (10 in 10).

Grissmer et al. (1989) have analyzed the preceding data with descriptive statistics. Among enlisted personnel at various ranks, between 10 and 24 percent have spouses with unfavorable attitudes (Grissmer et al., 1989). Among those spouses who have a negative attitude, at least part of the negativity arises from the time demands of this additional part-time job and the attendant reduced time to meet family obligations. About one-quarter of officers say that they spend too much time on both their civilian and Reserve jobs. As a result of these factors, these servicemen feel that they are squeezed for time to spend with their families. Between 67 and 74 percent of the officers and 54 and 64 percent of the enlisted feel that they don't spend enough time in family activities.

Three questions in the survey inquired about the extent to which specific requirements associated with participation in the Reserves posed a problem for the family. These three areas were week-end drills, annual training, and extra time spent at Guard/Reserve activities. Overall, enlisted Reservists reported a lower percentage of family problems with the time requirements than officers. Fifteen percent reported week-end drills were problematic, 23 percent cited extra time, and 25 percent said annual training was a problem for the family. Similarly, officers had the fewest family problems with week-end drills (27 percent), the next most with annual training (34 percent), and the most with the extra time requirements (39 percent).

The time demands of Reserve activities are, no doubt, a major factor influencing spouse's attitudes about participation in the Reserves. In order to see what influence problems in this area had on the likelihood of a Reserve/Guard staying, we calculated the mean likelihood of staying for each of four levels of family time problems. These ranged from a serious problem to no problem at all. Further, this was done for each of the three major activities associated with Reserve duty (week-end drills, annual training and extra time). The data for each of these activities are presented separately for officers and enlisted in Table 1. The overall high likelihood of retention scores show only a moderate decline when officers report family problems in the areas of week-end drills, annual training, and extra time spent on Guard/Reserve matters.

Enlisted soldiers, also as shown in Table 1, exhibit not only substantially lower overall likelihood of retention scores but, more importantly, much more dramatic drops in retention likelihood as a function of experiencing family problems in the three areas of week-end drills, annual training, and extra time spent on Reserve/Guard matters.

Table 1

Type of Problem	Mean Likelihood of Retention as a function of Seriousness of Time Problems for the Family Associated with Three Duty Requirements. Shown separately for Officer and Enlisted (N's in Parentheses)							
	Week-end Drills			Annual Training			Extra Time	
	Officer	Enlisted	Officer	Enlisted	Officer	Enlisted	Officer	Enlisted
Serious Problem	8.48 (187)	3.53 (648)	8.22 (351)	3.47 (1525)	8.77 (645)	3.54 (1733)		
Somewhat Problem	9.13 (1572)	4.57 (3610)	9.15 (1994)	4.96 (5440)	9.27 (1819)	5.03 (4125)		
Slight Problem	9.48 (2417)	5.58 (7311)	9.6 (2379)	6.20 (7581)	9.76 (2192)	6.30 (6696)		
Not a Problem	9.88 (2854)	7.17 (16684)	9.93 (2584)	7.32 (13594)	9.89 (2195)	7.42 (13315)		

Note: Likelihood of retention values range from 1 = no chance, to 11 = certain.

Method

We use hierarchical instead of the ordinary least squares regression of retention intention of individual Reservists because of the problem of multicollinearity of predictor variables such as spouse's earnings and spouse's attitude toward retention. The presence of multicollinearity tends to increase the estimated standard error, and hence, reduces the t-statistic, which, in turn, results in statistically insignificant or inefficient parameter estimates. The hierarchical regressions are useful when there is causal ordering among predictor variables. In our database, there is causal ordering because an increase in spouse's earnings adversely affects spouse support and spouse's attitude toward the Reservist's retention intention. The economic variables are entered into the equation together as a hierarchical block first, then spouse's attitude variable is entered as a separate block in order to separate its influence from spouse earnings. As noted above, the economic variables include the Reservist's civilian and military earnings, spouse earnings and "other" income of the family.

In a second set of equations, in order to control for the effects of seniority, we create and enter a new variable first into the equation. This is the total number of years an individual had been on active plus Reserve duty. This variable helps account for the motivation to earn retirement benefit points associated with staying in the Reserve/Guard units. We include the years of prior service in the active force in the value of this variable because, as noted earlier, about one-half of all enlisted personnel in Reserve/Guard units comprise of prior service individuals (Marquis et al., 1989).

Given that recruiting standards, training requirements, earnings and spousal attitudes are different for officers and enlisted personnel, we analyze these two groups separately.

Regression Results and Discussion

Table 2 shows that, as hypothesized, the officers' military earnings are positively and significantly ($p < .001$) related to their likelihood of retention. The regression coefficient indicates that, other things being equal, an increase in military earnings by \$1,000 tends to increase the probability of their retention by 15%. The spouse's favorable attitude toward his participation in the Reserve/Guard units is also related positively and significantly ($p < .001$) to the reported likelihood of retention. The regression coefficient suggests that a one point increase in spouse's attitude, say from being indifferent to retention to becoming favorable to retention, increases an officer's retention probability by 20%. More importantly, the variable, spouse's attitude has, by far, the largest beta coefficient. The civilian earnings variable is

positive and significant ($p < .001$) so that a \$1,000 increase in civilian income tends to increase a Reserve/Guard officer's retention probability by 8%. The spouse's earnings variable is negative, as hypothesized, but is not significant ($p < .05$), perhaps because these spouses are relatively new entrants to the labor force. Finally, the variable, "other" income, is positive, as hypothesized, but is also insignificant ($p < .05$). This may be attributed to the possibility that this income is likely to be from investments and these amounts inconsiderable for this young officer cohort.

Table 2

Regression of Likelihood of Retention on Civilian Earnings, Spouse's Earnings, Other Income, Reserve/Guard Earnings and Spouse's Attitude Toward Retention of Officer and Enlisted (Standardized Coefficients)		
Variables	Officer (N=7,525)	Enlisted (N=29,783)
Civilian Earnings	.081***	-.014**
Spouse's Earnings	-.009	-.008
Other Income	.013	.016**
Reserve/Guard Earnings	.147***	.159***
Spouse's Attitude	.209***	.265***
Constant	6.980	2.156
R-Squared	.073	.104
* $p < .05$		
** $p < .01$		
*** $p < .001$		

For enlisted Guard/Reservists, Table 2 shows that the variables for military earnings, spouse attitude, and other income are positive, as expected. The military earnings variable is positive and significant ($p < .001$). It suggests that a \$1,000 increase in military earnings tends to increase enlisted Reserve/Guard's retention probability by 16%. The beta coefficient for spouse's attitude is, once again, the largest of all the coefficients. It is positive and significant ($p < .001$) so that an increase in spouse's attitude by one point on the five-point scale tends to increase an enlisted Reserve/Guard's probability of staying by 26%. The "other" income variable is also positive and significant ($p < .01$) so that a \$1,000 increase tends to enhance an enlisted Reserve/Guard's likelihood of retention by about 2%. This result is unlike the result for the officers who do not appear to be influenced by their "other" income in their retention decision-making process. In contrast, the enlisted Reservists/Guards are significantly influenced by this "other" income which might be made up of such public service benefits as food stamps, etc., because of their low earning potential. Finally, the civilian earnings variable is negative and significant ($p < .01$) so that an increase of \$1,000 is associated with a decrease in retention probability of 1%. This result is contrary to that for the Reserve/Guard officer noted above but is consistent with the moonlighting theory and results obtained by Rostker (1976), McNaught (1981a), Burright et al. (1982), and Clay-Mendez (1983) for enlisted Reservist/Guard. The result for the civilian income variable indicates that the moonlighting theory or the theory of compensated leisure is valid for enlisted but not for officers. The result for the spouse income variable is similar to that for the officer Reserve/Guard noted above, namely, it is negative but is not significant ($p < .05$). This outcome is likely to be due to the fact that these enlisted wives are also a young cohort just starting out in the labor market and hence cannot make a significant contribution to family earnings.

Table 3 presents the estimation results when years of service variable is entered first in the equation. As expected, increasing military seniority is positively related to the likelihood of reenlisting. Further, earnings from Guard/Reserve duty and spouse's attitude are still significant ($p < .001$) with the seniority variable in the equation. Both Guard/Reserve earnings and spouse attitude are positively and significantly ($p < .001$) related to the criterion variable of reenlistment intention. The beta coefficient for spouse's attitude is over twice as large as that for Guard/Reserve income. The spouse earnings and the other income variables bear unexpected signs but are not significant ($p < .05$). The coefficient of determination (R-squared), adjusted for degrees of freedom, increased compared to its value in Table 2, because of inclusion of the relevant

years of service variable. The R-squared value is not too low, given the fact that these are cross sectional data. Such data always yield lower R-squares relative to time series data.

Table 3

Regression of Likelihood of Retention on Years of Service, Civilian Earnings, Other Income, Reserve/Guard Earnings, and Spouse's Attitude toward Retention of Officer and Enlisted (Standardized Coefficients)		
Variables	Officer (N=7,525)	Enlisted (N=29,783)
Years of Service	.357***	.087**
Civilian Earnings	-.000	-.034
Spouse's Earnings	.005	.019
Other Income	.016	.011*
Reserve/Guard Earnings	.070***	.122***
Spouse's Attitude	.171***	.256**
Constant	6.20	2.12
R-squared	.185	.110
* p < .05		
** p < .01		
*** p < .001		

Conclusion

Among reserve officers, the pattern of results suggest that Reserve earnings, while controlling for other sources of family income and seniority, has a small but significant positive effect on reenlistment intentions. More importantly, spouse's attitude about participation in the Guard/Reserves has a much stronger effect on reenlistment intentions than the amount of income from a variety of sources. The strong effect of spouse attitude on retention of Reserve/Guard personnel is similar to research findings of the active force (e. g. see Blankinship, Bullman and Croan, 1990). This result suggests that, from a policy point of view, perhaps more resources should be placed into reaching spouses with a favorable message about participation in the Reserves/Guard. Such a policy may be more cost-effective than additional monetary incentives which have to be paid to all the Reservists/Guard officers, including those who were going to stay any way because of non-monetary reasons. The spouse outreach policy might, however, be more expensive because, unlike the active force spouses, the Reserve/Guard spouses are not concentrated in specific locations or Army installations. In such a case, a monetary incentive in the form of an increase in Reserve/Guard pay or allowances should be considered for increasing their retention rates. A combination of the two alternatives should also be considered by the policy makers for increasing the retention.

The picture which emerges from the analyses of enlisted personnel is somewhat more complicated inasmuch as all of the income predictor variables except spouse's earnings are significantly related to the likelihood of reenlistment. However, only two variables, similar to the results for officers, Guard/Reserve earnings and spouse's attitude, had moderately large beta coefficients. Also, the size of the beta coefficient for spouse's attitude was almost twice as large as that for Reserve earnings. Therefore, policy implications for this category of Reserve/Guard servicemen are similar to that of the officers, namely, influence the spouses, if it is cost-effective to cover the country; if not, use the monetary incentives of increases in pay, allowances and reenlistment bonuses for increasing the required reenlistments. A combination of the two alternatives of increases in monetary benefits and changing spouse attitudes should also be evaluated.

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