NAVAL POSTGRADUATE SCHOOL
Monterey, California

THESIS

THE EFFECTS OF MILITARY ASSIGNMENTS AND DUTIES ON THE MARITAL STATUS OF NAVY OFFICERS

by

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March 2003

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This study seeks to determine if military duties and assignments affect the marriage and divorce decisions of United States Navy officers. Previous studies suggest that a stable marriage can have a positive influence on a military member's performance. However, no previous research has looked specifically at how duties and assignments may affect the marital status of Navy officers. This thesis presents an overview of duty types in the Navy and various factors that are believed to affect the marriage and divorce decisions of Navy officers. Based on the literature review, five hypotheses are generated and tested by estimating 32 logit models. The results show that military duties and assignments, gender, and commissioning sources significantly affect the likelihood and timing of marriage and divorce decisions of Navy officers. The results provide important information that can be used by policy makers to help reduce the adverse effects of duties and assignments on Navy marriages. The study also looks at the relationship between marriage on divorce and the member's decision to leave the Navy. It is recommended that further research be conducted regarding the effects of duties and assignments on divorce for enlisted personnel and members of other US armed forces.

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THE EFFECTS OF MILITARY ASSIGNMENTS AND DUTIES ON THE MARITAL STATUS OF NAVY OFFICERS

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ABSTRACT

This study seeks to determine if military duties and assignments affect the marriage and divorce decisions of United States Navy officers. Previous studies suggest that a stable marriage can have a positive influence on a military member's performance. However, no previous research has looked specifically at how duties and assignments may affect the marital status of Navy officers. This thesis presents an overview of duty types in the Navy and various factors that are believed to affect the marriage and divorce decisions of Navy officers. Based on the literature review, five hypotheses are generated and tested by estimating 32 logit models. The results show that military duties and assignments, gender, and commissioning sources significantly affect the likelihood and timing of marriage and divorce decisions of Navy officers. The results provide important information that can be used by policy makers to help reduce the adverse effects of duties and assignments on Navy marriages. The study also looks at the relationship between marriage on divorce and the member's decision to leave the Navy. It is recommended that further research be conducted regarding the effects of duties and assignments on divorce for enlisted personnel and members of other US armed forces.

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I. INTRODUCTION

A. PROBLEM DESCRIPTION

The training, working conditions, and careers of restricted and unrestricted line officers differ significantly in the U.S. Navy. In addition, many differences also exist within each group. Some occupations are riskier and more arduous than others, and some occupations require long-term deployments. Officers assigned to duties in foreign countries must live in those countries for extended periods, and vast cultural differences often influence the officers' lifestyles. In addition, according to the Navy's assignment policy, duty stations for officers change every two or three years. When compared with a civilian who has a "regular" job, it is obvious that the duties of Navy officers can be far more demanding and far more intrusive in one's personal life.

In public service, serving one's country with loyalty and devotion is a requirement, and the "oath of service" is the symbolic contract of this devotion. Officers begin their service cognizant of the difficulties of their profession and obey the orders that sometimes affect not only themselves, but also their families throughout their service. On the one hand, being an officer-on-duty regularly in the earlier career period, going on long-term deployments, and serving consecutive assignments to different locations, including foreign countries, limit the time available to single Navy officers for their personal lives. This may reduce the possibility of finding a suitable spouse. On the other hand, these difficulties can threaten the stability of an existing marriage.

The degree to which officers are affected differs greatly according to their duties. For instance, one of the eligibility requirements of the U.S. Naval Academy is to be single with no dependents. Midshipmen must leave their hometowns and their friends, including their potential spouses, for four years during their enrollment at the Naval Academy, and they only have limited free time during the holidays. Also, the stress that submariners and Navy SEALS are exposed to in their duties is typically much greater than that of most other Navy officers, and this stress may affect their private lives in a more profound manner.

The Navy recognizes differences in the working conditions of officers and tries to compensate for these difficulties through many policies. Some of these policies exist in the form of monetary incentives, and some are in the form of family support services. The main purpose of these policies is to improve the quality of the lives of the officers and their dependents to the same level as that of the officers who have relatively less difficult duties. These policies have always been important to the Department of Defense, both in terms of their financial and social dimensions. One of the indications of the effectiveness of these policies is the degree to which they may prevent divorces. This is important, because a recent study discovered that married male U.S. Navy officers have better on-the-job performance and higher probability of promotion to O-4 than do their unmarried counterparts.[1] For this reason, healthy marriages of Navy officers are not only beneficial for society, but can also contribute to the readiness of the Navy.

Healthy marriages have always been an issue of concern in the U.S. The trends for marriage and divorce rates of both the U.S. population as a whole and the Armed Forces have changed a great deal over time. Generally, the U.S. has always had one of the highest divorce rates in the world. Many studies have been conducted comparing the marital status trends in the Armed Forces and the U.S. population. However, these studies only covered the total Navy, so the effects of different occupational or working conditions in the Navy on the marital status of officers could not be examined.

This thesis utilizes data on U.S. Navy officers to analyze the effects of military assignments and duties on the marital status of Navy officers. The thesis seeks to determine whether specific duties in the Navy significantly affect marital status. The results are used to make recommendations about policies that may affect the officers' quality of life and family well-being. Conducting a detailed study on specific duties and occupations provides better information to policy makers on the precise working conditions that affect the well-being of officers. The results also promote more informed discussion concerning current problems related to the marital status of Navy officers and actions to remedy these problems.

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1 Ryu, Seung-min and Kol, Mustafa, An Analysis of the Relationship between Marital Status and Family Structure and On-the-Job Productivity, Master's Thesis, Naval Postgraduate School, Monterey, California, March 2002.

B. THESIS PURPOSE

The purpose of this research is, first, to ascertain if some types of duties and assignments significantly affect the decisions of Navy officers to marry and divorce. The second goal is to detect the effectiveness of the policies of the Department of Defense that provide monetary and non-monetary incentives to officers in these occupations and duties.

C. THESIS SCOPE

This research encompasses four parts: (1) a review of previous studies about the marriage and divorce trends in the United States; (2) estimation of different models and testing of hypotheses about the effects of duties on the marital status of Navy officers; (3) summary of major findings and recommendations; and (4) discussion of the limitations of the study and possible extensions.

D. RESEARCH QUESTIONS

The primary research questions addressed by this thesis are:

- Do U.S. citizens, in general, and military officers have the same marriage and divorce rates?
- Which military duties affect the marital status of Navy officers?
- Do long deployments contribute to divorce?
- Do foreign duties or long deployments reduce marriage rates?

The secondary research questions addressed by this thesis are:

- Does the number of dependents have an impact on divorce?
- Does the commissioning source affect marriage rates?
- Do early marriages have a significant effect on divorce?

E. THESIS ORGANIZATION

This thesis consists of the following chapters:

Chapter I: INTRODUCTION. Introduces the problem, purpose, and scope of the thesis, and presents the research questions and organization of the thesis.

Chapter II: DUTY TYPES AND ASSIGNMENT POLICIES IN THE NAVY. Presents detailed information about the duty types and assignment policies in the Navy.

Chapter III: LITERATURE REVIEW. Discusses marriage and divorce trends, reviews the causes and effects of marriage and divorce decisions of individuals through a

review of previous studies and summarizes the major hypotheses about the effects of military duties on the marital status of Navy officers based on the literature review.

Chapter IV: DATA AND METHODOLOGY. Describes the variables used in the models and the basic data, and presents descriptive statistics information on the marital status of Navy officers. Also discusses the methodologies used to estimate the multivariate models.

Chapter V: RESULTS. Lists and interprets the results of each multivariate model, and compares the results obtained from the models.

Chapter VI: SUMMARY, CONCLUSIONS AND RECOMMENDATIONS. Summarizes the major findings of the study, identifies the limitations of the research, and provides recommendations for policy and future research.

II. DUTY TYPES AND ASSIGNMENT POLICIES IN THE NAVY

A. INTRODUCTION

There are many different duties in the Navy. One of the main reasons for limiting this thesis only to Navy officers is the necessity of controlling these various kinds of duties to some extent. In the Navy Officer Billet Classification (NOBC) Codes list, hundreds of different officer billets are listed.[2] The NOBC identifies a group of officer billets, which are similar but not necessarily identical in scope, and the nature of duties.[3] Although it is not the exact billet list for the officers, NOBC is a good indicator of how the duties in the Navy do differ. The Navy's assignment policy concerning sea-shore rotations, duties in foreign countries, and the duty changes caused by the increase in the officer's seniority over time, do not allow officers to stay at the same duty station for a long period of time. One of the reasons for the rotation approach in assignments is to reduce the negative effects of harder and riskier duties. For example, during the shore cycles, by providing more personal time and relatively easier duties to the officers, the officers are expected to eliminate the negative issues they encountered during their sea-duty cycles. Since it is difficult to provide degrees for the hardship of each duty in the Navy, and since is also not possible to include every single duty in the studies about the negative effects of duties, one must generalize and draw hypotheses.

This chapter contains detailed information about duty types and assignment policies in the Navy to establish a background for the literature review and to derive hypotheses to test the effects of various duties and assignments on the marital status of Navy officers.

B. OFFICER DUTIES IN THE NAVY

1. Coding of Duties

Officer duties in the Navy are coded differently for the three occupation codes of "primary, secondary, and duty." Grouping the officers according to their occupations is possible by checking these codes.

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2 http://buperscd.technology.navy.mil/bup_updt/upd_CD/BUPERS/OFFCLASS/Vol. 1/PART C - Navy Officer Billet Classification (NOBC) Codes.PDF, November 2002.

3 http://buperscd.technology.navy.mil/bup_updt/upd_CD/BUPERS/OFFCLASS/Vol 1/PART C - Navy Officer Billet Classification (NOBC) Codes.PDF. p. C-3, November 2002.

a. Primary Occupation

Primary occupation codes are composed of a four-digit Designator and the most current three-digit Additional Qualification Designator (AQD-1). The first three digits of the officer designator codes are used to group officers by categories for personnel accounting and administrative purposes. The fourth digit is used to determine the status of the officers in the various categories. AQD codes enhance Designator codes by identifying more specifically the qualifications of officers and the qualifications required by a billet or awarded to the incumbent of a billet.[4] Billet and officer designator codes are grouped in general categories as follows:[5]

(1) Unrestricted Line (URL). Officers of the line of the Regular Navy and Naval Reserve who are not restricted in the performance of their duty.

(2) Restricted Line (RL). Officers of the line of the Regular Navy and Naval Reserve, who are restricted in the performance of their duty by having been designated for aviation duty, engineering duty, aerospace engineering duty, or special duty.

(3) Unrestricted Line – Prospective Staff Corps. Unrestricted Line officers under instruction as prospective officers of a specific staff corps.

(4) Staff Corps. Officers of all staff corps of the Regular Navy and Naval Reserve. The eight staff corps are: (1) Medical Corps; (2) Dental Corps; (3) Medical Service Corps; (4) Judge Advocate General's Corps; (5) Nurse Corps; (6) Supply Corps; (7) Chaplain Corps; and (8) Civil Engineer Corps.

(5) Limited Duty-Line. Officers of the line of the Regular Navy and Naval Reserve appointed for the performance of duty in the broad occupational fields indicated by their former warrant designators or enlisted rating groups.

(6) Limited Duty-Staff. Officers of the staff of the Regular Navy and Naval Reserve appointed for the performance of duty in the broad occupational fields indicated by their former warrant designators or enlisted rating groups.

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4 DoD Occupational Conversion Index, DoD 1312.1-I, March 2001, p. 259.

5 http://buperscd.technology.navy.mil/bup_updt/upd_CD/BUPERS/OFFCLASS/Vol1/PARTA - Billet and Officer Designator Codes, p. A-2, November 2002.

(7) Chief Warrant-Line. Officers of the line of the Regular Navy and Naval Reserve appointed to chief warrant officer for the performance of duty in the technical fields indicated by their former enlisted rating groups.

(8) Chief Warrant-Staff. Officers of the staff of the Regular Navy and Naval Reserve appointed to chief warrant officer for the performance of duty in the technical fields indicated by their former enlisted rating groups.

Table II.1 shows the billet and officer designator codes in the Navy by category and description.

Table II.1. Billet and Officer Designator Codes by Category and Description

BILLET CODE	GENERAL CATEGORY	BILLET DESCRIPTION
1100	Unrestricted Line	General Unrestricted Line
1110	Unrestricted Line	Surface Warfare
1120	Unrestricted Line	Submarine Warfare
1130	Unrestricted Line	Special Warfare
1140	Unrestricted Line	Special Operations EOD/DIV/SAL
1160	Unrestricted Line	Surface Warfare, Trainee
1170	Unrestricted Line	Submarine Warfare, Trainee
1180	Unrestricted Line	Special Warfare, Trainee
1190	Unrestricted Line	Special Operations, Trainee
1200	Unrestricted Line	Material Professional Designated
1300	Unrestricted Line	Aviation, Terminated
1310	Unrestricted Line	Pilot
1320	Unrestricted Line	Naval Flight Officer
1370	Unrestricted Line	Naval Flight Officer, Trainee
1390	Unrestricted Line	Pilot, Trainee
1440	Restricted Line	Engineering Duty Officer
1460	Restricted Line	'Various" Engineering Duty, Trainee
1500	Restricted Line	Aerospace Engineering
1510	Restricted Line	Aerospace Engineering ENGR
1520	Restricted Line	Aerospace Engineering AMD
1540	Restricted Line	Aviation Duty Officer
1610	Special Duty	Cryptology
1620	Special Duty	Merchant Marine, Deck
1630	Special Duty	Intelligence
1640	Restricted Line	Cryptology, Trainee
1650	Special Duty	Public Affairs
1660	Special Duty	Merchant Marine, Deck - Engineering
1670	Special Duty	Merchant Marine, Engineering
1690	Special Duty	Merchant Marine, Communications

BILLET CODE	GENERAL CATEGORY	BILLET DESCRIPTION
1700	Special Duty	Fleet Support
1800	Special Duty	Oceanography
1900	Unrestricted Line	Prospective Nurse Corps Officer
1910	Unrestricted Line	Prospective Medical Corps Officer
1920	Unrestricted Line	Prospective Dental Corps Officer
1930	Unrestricted Line	Prospective Medical Service Corps Off.
1940	Unrestricted Line	Prospective Chaplain Corps Officer
1950	Unrestricted Line	Prospective Judge Advocate General's
1960	Unrestricted Line	Prospective Medical Corps Trainee
1970	Unrestricted Line	Scholarship (Medical/Osteopathic)
1980	Unrestricted Line	Scholarship (Dental) Trainee
1990	Unrestricted Line	Scholarship (Medical Service) Trainee
2100	Staff Corps	Medical Corps
2200	Staff Corps	Dental Corps
2300	Staff Corps	Medical Service Corps
2500	Staff Corps	Judge Advocate General Corps
2700	Staff Corps	Active Duty Nurse Corps
2900	Staff Corps	Nurse Corps-General
3100	Staff Corps	Supply Corps-General
3160	Staff Corps	Direct Com. Supply Corps Trainee
4100	Staff Corps	Chaplain Corps
5100	Staff Corps	Civil Engineer Corps
6110	Limited Duty	Deck, Surface
6120	Limited Duty	Operations, Surface
6130	Limited Duty	Engineering/Repair, Surface
6150	Limited Duty	Special Warfare, technician
6160	Limited Duty	Ordnance, Surface
6180	Limited Duty	Electronics, Surface
6190	Limited Duty	Communications, Surface
6210	Limited Duty	Deck, Submarine
6230	Limited Duty	Engineering/Repair Submarine
6260	Limited Duty	Ordnance, Submarine
6280	Limited Duty	Electronics, Submarine
6290	Limited Duty	Communications, Submarine
6300	Limited Duty	Naval Aviator
6310	Limited Duty	Deck, Aviation
6320	Limited Duty	Operations, Aviation
6330	Limited Duty	Maintenance, Aviation
6360	Limited Duty	Ordnance, Aviation
6380	Limited Duty	Avionics
6390	Limited Duty	Air Traffic Control
6400	Limited Duty	Nuclear Power
6410	Limited Duty	Administration
6420	Limited Duty	Data Processing

BILLET CODE	GENERAL CATEGORY	BILLET DESCRIPTION
6430	Limited Duty	Bandmaster
6440	Limited Duty	Cryptology
6450	Limited Duty	Intelligence
6460	Limited Duty	Meteorology/Oceanography
6470	Limited Duty	Photography
6480	Limited Duty	Explosive Ordnance Disposal
6490	Limited Duty	Security
6510	Limited Duty	Supply Corps – General
6530	Limited Duty	Civil Engineer Corps
6550	Limited Duty	Judge Advocate General Corps
7110	Chief Warrant	Boatswain, Surface
7120	Chief Warrant	Operations Technician, Surface
7130	Chief Warrant	Engineering Technician, Surface
7140	Chief Warrant	Repair Technician, Surface
7150	Chief Warrant	Special Warfare Technician
7160	Chief Warrant	Ordnance Technician, Surface
7180	Chief Warrant	Electronics Technician, Surface
7190	Chief Warrant	Communications Technician, Surface
7200	Chief Warrant	Diving Officer
7210	Chief Warrant	Boatswain, Submarine
7230	Chief Warrant	Engineering Technician, Submarine
7240	Chief Warrant	Repair Technician, Submarine
7260	Chief Warrant	Ordnance, Submarine
7280	Chief Warrant	Electronics, Submarine
7310	Chief Warrant	Boatswain, Aviation
7320	Chief Warrant	Operations, Aviation
7340	Chief Warrant	Aviation Maintenance Technician
7360	Chief Warrant	Ordnance, Aviation
7380	Chief Warrant	Aviation Electronics
7400	Chief Warrant	Nuclear Power
7410	Chief Warrant	Ship's Clerk
7420	Chief Warrant	Data Processing
7440	Chief Warrant	Cryptology
7450	Chief Warrant	Intelligence
7470	Chief Warrant	Photographer
7480	Chief Warrant	Explosive Ordnance Disposal
7490	Chief Warrant	Security
7510	Chief Warrant	Supply Corps – General
7520	Chief Warrant	Food Service
7530	Chief Warrant	Civil Engineer Corps
7560	Chief Warrant	Technical Nurse

From: http://buperscd.technology.navy.mil/bup_updt/upd_CD/BUPERS/OFFCLASS/ PART A - Billet and Officer Designator Codes

b. Secondary Occupation

This is composed of the first four digits of the most current five-digit Subspecialty Code. The fifth digit states the level of the education/training/experience pertaining to the field and is not used in creating Secondary DoD Occupation Codes. Subspecialty codes define the field of application and additional education, experience and training qualifications needed to satisfy special requirements within an occupational field. Subspecialties are not applicable to Flag Officer billets and Warrant Officer and Limited Duty Officer personnel.[6] In addition, Master's level and higher education requirements normally are not applied to Unrestricted Line shore duty billets below the grade of LCDR.[7] Table II.2 shows the subspecialty (SSP) codes in the Navy by education, training or experience and subspecialty area.

Table II.2. Subspecialty (SSP) Codes by Education, Training, or Experience and Subspecialty Area

CODE	EDUCATION/TRAINING/EXPERIENCE	SUBSPECIALTY FOR
0000	Any Discipline	URL/RL Staff Corps
1101-1103	Civil Engineering	Unique Staff Corps
1201-1207	Legal	Unique Staff Corps
1300-1308	Supply	Unique Staff Corps
1410-1470	Religion	Unique Staff Corps
15xx-16xx	Medical Corps	Unique Staff Corps
1700-1795	Dental Corps	Unique Staff Corps
1800-1893	Medical Service Corps	Unique Staff Corps
1900-1981	Nurse Corps	Unique Staff Corps
2000-2500	National Security Studies	URL/RL Staff Corps
3000-3212	Resource Management and Analysis	URL/RL Staff Corps
4000-4500	Applied Disciplines	URL/RL Staff Corps
5000-5710	Engineering and Technology	URL/RL Staff Corps
6000-6500	Operations	URL/RL Staff Corps

From: http://navprodev.bupers.navy.mil/nss/information/subspeciality_Codes.asp. Part B, Subspecialty (SSP) Codes, paragraph 4.

c. Duty Occupation

A four-digit Navy Officer Billet Classification (NOBC) code identifies a group of officer billets that are similar, but not necessarily identical in scope and in

6 DoD Occupational Conversion Index, DoD 1312.1-I, March 2001.

7 http://buperscd.technology.navy.mil/bup_updt/508/OfficerClassification/i/I14_PT_B.htm. Part B, Subspecialty (SSP) Codes, p. B 1-9, November 2002.

nature, in their duties. When NOBC is used to identify a billet, it is a general indicator of duties performed to accomplish some part of an activity's mission. When used in an officer classification, the NOBC reflects qualifications required as a result of performance in a billet or, in some instances, a combination of experience and education related to the billet's requirements.[8] Currently, there are 678 different officer billet classification codes in the Navy. The NOBCs and their corresponding fields are shown in Table II.3.

Table II.3. Navy Officer Billet Classification (NOBC) Codes and Corresponding Fields

CODES	BILLET CLASSIFICATION	FIELD
0000-0099	Health Services Management Group	Health Care Services
0100-0199	Medical Specialties (Medicine) Group	Health Care Services
0200-0299	Medical Specialties (Surgery) Group	Health Care Services
0300-0399	General Dentistry Group	Health Care Services
0500-0599	Dental Specialties Group	Health Care Services
0800-0899	Health Care Services Group	Health Care Services
0900-0999	Nursing Group	Health Care Services
1000-1099	Fiscal Group	Supply and Fiscal Field
1100-1199	Subsistence, Open Mess, BQ Management	Supply and Fiscal Field
1200-1299	Transportation Group	Supply and Fiscal Field
1300-1399	Material Distribution Group	Supply and Fiscal Field
1400-1499	Procurement Group	Supply and Fiscal Field
1500-1599	Inventory Control Group	Supply and Fiscal Field
1900-1999	General Group	Supply and Fiscal Field
2000-2099	Physical and Natural Sciences Group	Sciences and Services Field
2100-2199	Naval Sciences Group	Sciences and Services Field
2200-2299	Social Sciences Group	Sciences and Services Field
2300-2399	Meteorology and Oceanography Group	Sciences and Services Field
2400-2499	Public Affairs Group	Sciences and Services Field
2500-2599	Legal Group	Sciences and Services Field
2600-2699	Management and Administrative Services	Sciences and Services Field
2700-2799	Security and Police Group	Sciences and Services Field
3000-3099	Recruitment and Selection Group	Personnel Field
3100-3199	Classification and Distribution Group	Personnel Field
3200-3299	General Training Group	Personnel Field
3300-3399	Human Resource Management Group	Personnel Field
3400-3499	Performance Group	Personnel Field
3500-3599	Welfare Group	Personnel Field

8 DoD Occupational Conversion Index, DoD 1312.1-I, March 2001.

CODES	BILLET CLASSIFICATION	FIELD
3700-3799	Chaplain Group	Personnel Field
3900-3999	General Group	Personnel Field
4200-4299	Shore Facilities Engineering Group	Facilities Engineering Field
4300-4399	Naval Construction Forces Group	Facilities Engineering Field
5700-5799	Training Devices Group	Electronics Engineering
5900-5999	General Group	Electronics Engineering
6000-6099	Ammunition and Explosives Group	Weapons Engineering Field
6200-6299	Guided Missiles Group	Weapons Engineering Field
6300-6399	Weapons Equipment Group	Weapons Engineering Field
6400-6499	Weapons Control Group	Weapons Engineering Field
6500-6599	Undersea Weapons Group	Weapons Engineering Field
6700-6799	Weapons Material and Programs Group	Weapons Engineering Field
6900-6999	General Group	Weapons Engineering Field
7100-7199	Hull Group	Naval Engineering Field
7200-7299	Machinery Group	Naval Engineering Field
7300-7399	Material Group	Naval Engineering Field
7400-7499	Production Engineering Group	Naval Engineering Field
7900-7999	General Group	Naval Engineering Field
8000-8099	Aviation Engineering (Design-Acceptance)	Aviation Field
8100-8199	Aviation Engineering-Maintenance-Rework	Aviation Field
8500-8599	Flight Group	Aviation Field
8600-8699	Ground Operations Group	Aviation Field
8800-8899	Photography Group	Aviation Field
8900-8999	General Group	Aviation Field
9000-9099	Staff and Fleet Command Group	Naval Operations Field
9200-9299	Shipboard Operations and Weapons Group	Naval Operations Field
9300-9399	Engineering Operations Group	Naval Operations Field
9400-9499	Shore Operations Group	Naval Operations Field
9500-9599	Communications Group	Naval Operations Field
9600-9699	Intelligence Group	Naval Operations Field
9700-9799	Automatic Data Processing Group	Naval Operations Field
9800-9899	Cryptology Group	Naval Operations Field
9900-9999	General Group	Naval Operations Field

From: http://buperscd.technology.navy.mil/bup_updt/upd_CD /BUPERS/OFFCLASS/ Vol%201/PART%20C%20-%20NAVY%20OFFICER%20BILLET%20 CLASSIFICATION 20(NOBC). PDF, Part C, Navy Officer Billet Classification Codes.

The primary, secondary, and the duty occupation codes in Tables II.1, II.2 and II.3 show that the officer duties in the Navy differ a lot. When conducting studies about the Navy, considering that all Navy personnel are the same, one may probably disregard the differences in working conditions among Navy officers. Since it is impossible to use every single duty in this study, a sufficient number of sample duties

representing a different and relatively harder group of duties will be selected. The unselected duties will form the base duty condition and will represent the majority of Navy officers who have relatively less arduous working conditions.

2. Navy's Assignment Policy for Officers

a. General

According to the Officer Transfer Manual (NAVPERS 15559B)[9], the mission of officer-related divisions of the Distribution Department (PERS-4) is threefold:

- To assign the best qualified officers to meet the needs of the Navy as defined by the approved officer billet file
- To assign officers to billets which develop their professional expertise so that the officer corps as a whole embodies the leadership, technical and managerial skills necessary to achieve the mission of the Navy
- To assign officers sensitively and fairly, ensuring their continued professional motivation and dedication to the Navy

These three missions address three different and important areas. The primary mission is the fulfillment of the Navy's needs. These needs are met by filling a valid billet requirement with the best officer available. A valid billet requirement begins with the officer allowance for each activity, as modified by the Navy Manning Plan for officers (NMPO). Billet requirements are further defined by augmenting information, such as Naval Officer Billet classification (NOBC) codes, Additional Qualification Designators (AQDs) and so on.[10]

The second mission is the fulfillment of the qualifications and career needs of the individual. Each officer community has a basic career path that develops its officers to assume positions of increasing responsibility. Depending on the community, each officer must obtain certain qualifications during his or her career. Career development information for all officer communities is contained in the annual career issue of "Perspective" (NAVPERS 15892). "Perspective" is the professional development bulletin of the Navy officer community, and is published by the Navy Personnel Command (PERS-05).[11]

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9 Officer Transfer Manual (NAVPERS 15559B) Chapter I, p. 1-1.

10 Ibid., p. 1-2.

11 Ibid., p. 1-3.

The third mission is the fulfillment of the desires of the officers. The officers can have contact with their detailers to inform them about their duty preferences in different ways, such as by phone or e-mail, by sending Officer Preference and Personal information cards (NAVPERS 1301/1), by Super JASS (Job Advertising and Selection System), and by face-to-face talks during detailer visits. Although officer duty preferences are important, there is no guarantee given to the officer about his/her preference.

Being directly related with my thesis, the working spouse factor is specifically considered in the assignment process. However, the employment status of the spouse does not take priority over the needs of the Navy or the career needs of the individual. The decision by a spouse to accept the paid employment, to attend school, to participate voluntarily in activities related to Naval Service, or to do none of these, will not be influenced by the preferences or requirements of the Navy. In addition, neither this decision nor the individual's marital status will have an effect on assignments or selection boards.[12]

b. Sea/Shore Rotations and Tour Lengths

Sea/shore rotations and tour lengths differ greatly among the duties in the Navy. Some occupations have several sea tours, and some have none. In addition to the nature of the occupation, other factors affecting rotation policy are the needs of the service, professional career development needs of the officers, officers' preferences (where feasible), personnel inventory, number of ships/commands available or projected, future requirements and fiscal constraints. In terms of fiscal constraints, Permanent Change of Station (PCS) cost is the major issue taken into account by the detailers.

Reduction of personnel turbulence and PCS cost initiatives focus high-level attention on adherence to tour length. Shore tour lengths for career personnel will normally be a minimum of three years. There are authorized exemptions, which can be seen in the tables of Prescribed Sea Tour (PST) and Recommended Shore Tour Lengths in Tables II.5 to II.19. Career development criteria necessitate that some Unrestricted Line (URL) officer warfare specialists will not be assigned ashore for excessive periods between sea tours. As a general policy, shore tours in excess of 36 months for pay grade

12 Ibid.

O-4 (lieutenant commander) and below, and 48 months for O-5 (commander) and above are the exception rather than the rule.[13]

Rotation of duty, sea duty and shore duty are defined and computed as specified in MILPERSMAN 1300-030[14]. When required, tour extensions may be granted for a maximum of 12 months.[15] In general, three requirements affect the rotation policy. These are Time on Station (TOS), retainability, and the prescribed tour lengths.

TOS applies primarily to consecutive CONUS (Continental United States) shore tours. TOS is established to stabilize the lives of members and dependents and to reduce PCS costs. DoD requires that members serve 36 months or more at a geographic location before receiving a PCS move that incurs a cost. One or more activity tours in the same geographic location are used to satisfy the 36-month area tour. A PCS move one month early requires a TOS waiver approved by PERS-4. Exemptions may be granted for any of the following reassignments on reasons:[16]

- To DoD overseas tour–a two-year minimum Navy activity tour at CONUS sea/shore is required prior to transfer overseas
- From sea duty activity–sea duty tour lengths are set by the Secretary of the Navy (SECNAV)
- To sea duty activity–a two-year minimum Navy activity tour at sea/shore is required prior to transfer to sea duty
- From Duty Under Instruction (DUINS-instruction 20 weeks or greater) – tour length dependent upon length of instruction
- To DUINS–24 months required for shore activity; a full sea tour is required coming from sea duty
- Disqualification–security, professional, special weapons, medical
- Humanitarian reasons
- From unit undergoing major weapon system change or unit conversion
- From unit designated new construction or undergoing homeport change

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13 Officer Transfer Manual (NAVPERS 15559B) Chapter 3, p. 3-2.

14 https://buperscd.technology.navy.mil/bup_updt/upd_CD/BUPERS/MILPERS/Articles/1300-030.pdf.

15 Officer Transfer Manual (NAVPERS 15559B) Chapter 3, p. 3-4.

16 Ibid.

- Spouse collocation–for CONUS, requires one year at losing command for collocating spouse; the other spouse, if also transferring, must complete TOS requirement or SECNAV recommended prescribed sea tour
- First-Termers–defined as O-1 and O-2 personnel:
  - First-term personnel reassigned (shore to shore) with less than three years TOS require NPC division director waiver approval
  - CONUS-Officers transferring to DUINS require 24 months prior to a PCS move from a shore activity and a full sea tour prior to transfer from a sea activity
  - OVERSEAS-Overseas first-termers must comply with DoD overseas tour lengths
- Office of the Secretary of defense (OSD), Office of the Joint Chiefs of Staff (OJCS) or Defense Agency activity tour lengths are limited by statute
- SECNAV - designated tours to validate specialized professional credentials for doctors and lawyers before independent duty
- Separation
- Nuclear billets under NAVSEA 08 cognizance (24-month minimum tour regardless of prior assignment or location)
- Skill conversion (designator change)

The second requirement affecting the rotation policy is retainability. Retainability is the minimum obligated service an officer must have to qualify for the issuance of PCS orders that incur a cost. Retainability covers the period from the date of reporting for duty at the new duty station, as seen in Table II.4.

Table II.4. Retainability Periods by Assignment

ASSIGNMENTS FROM/TO	PERIOD
CONUS to CONUS Shore	Two Years
CONUS to CONUS Sea	One Year
To Overseas Shore	Full DoD Area Tour (according to accompanied status)
To Overseas Sea	Min. 24 Months (except where DoD area tour is shorter)
Overseas to CONUS	One Year
CONUS No/Low Cost Move	One Year
Overseas No/Low Cost Move	One Year or the Balance of the DoD Area Tour

Note: CONUS: Continental United States, OUTUS: Outside Continental United States.
From: Officer Transfer Manual (NAVPERS 15559B) Chapter 3, p. 3-6.

The third requirement affecting the rotation policy is the Prescribed Tour Length (PTL). PTLs are set by SECNAV for sea duty assignment and by DoD for all others. Retainability and PTL are not interchangeable terms. Both must be satisfied prior to writing the assignment order. The retainability requirement is met in relation to the next PCS assignment, while the PTL requirement is satisfied for the existing tour assignment. Tables II.5 to Table II.19 show the Prescribed Sea Tour (PST) and recommended (by the Officer Transfer Manual NAVPERS 15559B) Shore Tour Lengths of different officer occupations.

Table II.5. Surface Warfare Officer (SWO) Prescribed Sea Tour (PST) Lengths and Recommended Shore Tour Lengths

RANK	TOUR	DESCRIPTION	SEA	SHORE
			(IN MONTHS)	
ENS/LTJG	Initial Sea	Junior Officer	24	
LTJG/LT	Second Sea	Division Officer	18	
LT	First Shore	TRACOM, NPS, Staff etc.		24
LT	Third Sea	Initial Department Head Tour	18	
LT/LCDR	Fourth Sea	Second Department Head Tour	18	
LT/LCDR		Single Department Head Tour	24-36	
LCDR	Second Shore	Subspecialty, NPS, JPME, Joint		24-36
LCDR	Fifth Sea	Complex	18-24	
		XO (Afloat)	18	
		XO (Other)	18-24	
		LCDR Command	20	
LCDR	Third Shore	Subspecialty		24-36
CDR		Washington, TRACOM, JPME, Joint		24-36
CDR	Sixth Sea	CDR Complex Sea, Staff	24-36	
CDR		CDR Command	20	
CDR	Fourth Shore	Subspecialty		24-36
CAPT		Washington DC, JPME, Joint		24-36
CAPT	Seventh Sea	Major Command	18-24	
		Sequential Command, Staff	18-24	
	Fifth Shore	TRACOM, Staff, Subspecialty, Joint		24-36

Note: TRACOM: Naval Training Command
JPME: Joint Professional Military Education
NPS: Naval Postgraduate School
From: Officer Transfer Manual (NAVPERS 15559B) Chapter 3, p. 3-11.

Table II.6. Nuclear Surface Warfare Officer Prescribed Sea Tour Lengths and Recommended Shore Tour Lengths

RANK	TOUR	DESCRIPTION	SEA	SHORE
			(IN MONTHS)	
ENS/LTJG	Initial Sea	Junior Officer, Nuclear Training*	36-42	18*
LT	First Shore	NPTU, NPS, Staff		24
		SWOS Department Head School		6
	Second Sea	Department Head, CVN	18-24	
LCDR	Second Shore	Washington DC, Joint		18-24
	Third Sea	XO	18	
	Third Shore	Joint, Washington DC		24
CDR	Fourth Sea	CO	20	
CAPT	Fifth Sea	CVN Reactor Officer	24-30	
	Fourth Shore	Shore Staff (NUC) Sequential		24-36
	Sea	Major Command	24	

Note: NPTU: Navy Nuclear Power Training Unit
From: Officer Transfer Manual (NAVPERS 15559B) Chapter 3, p. 3-12.

Table II.7. Submarine Officer Prescribed Sea Tour Lengths and Recommended Shore Tour Lengths

RANK	TOUR	DESCRIPTION	SEA	SHORE
			(IN MONTHS)	
ENS/LT	Training	Junior Officer		15
	Initial Sea		36	
	Initial Shore			24-36
	Shore	SOAC		6
	Sea	Department Head	36	
LCDR	Shore	Post Department Head		24-36
	Sea	XO	24	
	Shore	PCO		6
CDR	Sea	CO	36	
	Shore	Post CO		24-36
CAPT	Sea		36	
	Sea	Major Command	24	
	Shore			24-36

Note: SOAC: US Navy Submarine Officers Advanced Course
PCO: Prospective Commanding Officer Training
From: Officer Transfer Manual (NAVPERS 15559B) Chapter 3, p. 3-13.

Table II.8. Special Warfare Officer Prescribed Sea Tour Lengths and Recommended Shore Tour Lengths

RANK	TOUR	DESCRIPTION	SEA	SHORE
			(IN MONTHS)	
ENS	Input	Core Training		9
ENS /LTJG	Initial Sea	Assistant Platoon Commander/Division Officer	36	
LT	Second Sea	Sea Platoon Commander/Dept. Head	24	
	First Shore	Staff, Tang Command, NPS		24-36
LCDR	Third Sea	XO Seal Team, SBU, SDV or NSWU/XO	15	
		Other Afloat Staff	24	
	2nd Shore	Joint Duty, Fleet or SOC Staff, SVC College		24-36
CDR	Fourth Sea	CO-Seal Team, SBU, SDV or NSWU	24	
	3rd Shore	CO Ashore, Shore Staff, SVC College, Joint Duty		24-36
CAPT	Fifth Sea	COMSPECBOATRON, COMNAVSPECWARGRU, COMNAVSPECWARDEVGRU	24	
	4th Shore	COMNAVSPECWARCEN, NSWC Staff, Joint Duty		24-36

Note: SBU: Special Boat Unit
SDV: Seal Delivery Vehicle
NSWU: Navy Special Warfare Unit
SOC: Special Operations Craft
SVC: Service
COMSPECBOATRON: U.S. Navy Specia l Boat Squadron
COMNAVSPECWARGRU: U.S. Navy Special Warfare Group
COMNAVSPECWARDEVGRU: Commander Naval Special Warfare Development Group
COMNAVSPECWARCEN: Naval Special Warfare Center
NSWC: Navy Special Warfare Center
From: Officer Transfer Manual (NAVPERS 15559B) Chapter 3, p. 3-13.

Table II.9. Special Operations Officer Prescribed Sea Tour Lengths and Recommended Shore Tour Lengths

RANK	TOUR	DESCRIPTION	SEA	SHORE
			(IN MONTHS)	
ENS	Input	Core Training		12
ENS/LTJG	Initial Sea	Division Officer, AOE, ARS, MHC, MCS	30	
LT		EOD School		12
	Second Sea	EODMU, MDSU, ARS,	24-30	
		Ops MCM, MHC, XO Afloat MCM	18	
		MHC XO Afloat, ARS	24	
LT	First Shore	Staff, Training Command, OIC, EOD Shore Set, EOM Duty		36
LCDR	Sea	CO Afloat ARS, MCM, MHC, XO Afloat EODMU, MDSU Dept Head MCS	24-30	
		CO Afloat MCM, MHC	22	
	Shore	CO/XO Ashore, Staff Service College, RDT&E, NPS, Dept Head, EOM Duty		36
CDR	Sea	CO EODMU, MDSU, CSO, EODGRU, MCMR on XO Afloat MCS	24	
	Shore	CO Ashore EOD, EOM, XO WPNSTA, Training Command, Shore Staff, RDT&E, Svc College, Joint Duty		36
CAPT	Sea	COMEODGRU, COMCMRON	Var.	
	Shore	CO EOM, EOD, HQ Staff, Joint Duty		Var.

Note: AOE: Fast Combat Support Ship
ARS: Auxiliary Rescue and Salvage
MHC: Coastal Mine Hunter
MCS: Mine Countermeasures Support Ship
EOD: Explosive Ordnance Disposal
EODMU: Explosive Ordnance Mobile Unit
MDSU: Mobile Diving and Salvage Unit
MCM: Mine Countermeasures Ships
RDT&E: Research Development Test and Evaluation
EOM: Explosive Ordnance Management
WPNSTA: Naval Weapons Station
COMEODGRU: Commander Explosive Ordnance Disposal Group
COMCMRON: Commander Mine Countermeasures Squadron
From: Officer Transfer Manual (NAVPERS 15559B) Chapter 3, p. 3-14.

Table II.10. Aviation Officer Prescribed Sea Tour Lengths and Recommended Shore Tour Lengths

RANK	TOUR	DESCRIPTION	SEA	SHORE
			(IN MONTHS)	
ENS	Input	Pilot/NFO Training		Variable
LTJG-LT	Initial Sea	Fleet Squadron Tour	36-42	
LT	First Shore	TRACOM, FRS, NPS, CRUITCOM, Staff, Washington DC		24-36
	Second Sea	Squadron, Ship's Company, Embarked Staff	24	
LCDR	Third Sea	Squadron Department Head	24-30	
CDR	Second Shore	Staff, Joint, Washington DC, Subspecialty		24-36
	Sea	Command XO/CO	24-36	
	Shore	Post-command		36
	Sea	Ship's Company	24	
CAPT	Sea	Major Sea Command, CV/LHA Command	18	
		Ship's Company, VP Wing Command, CVW Command	24	
		CVN Command	36	
	Shore	Major/Minor Shore Command		24
		Other Shore		36

Note: NFO: Navy Flight Officer
TRACOM: Naval Training Command
FRS: Fleet Replacement Squadron
CRUITCOM: Naval Recruiting Command
VP: U.S. Navy Patrol Squadron
CV: Aircraft Carrier
LHA: Amphibious Assault Ships
CVW: Carrier Air Wings
CVN: Aircraft Carrier
From: Officer Transfer Manual (NAVPERS 15559B) Chapter 3, p. 3-14.

Table II.11. Aviation Engineering Duty Officer Prescribed Sea Tour Lengths and Recommended Shore Tour Lengths

RANK	TOUR	DESCRIPTION	SEA	SHORE
			(IN MONTHS)	
CDR and below	Sea	Engineering Duty	30	
	Shore	Engineering Duty		36-48
CAPT		Engineering Duty		36-48

From: Officer Transfer Manual (NAVPERS 15559B) Chapter 3, p. 3-16.

Table II.12. RL/Staff Officer (Aerospace Engineering-Designator Code 151X) Prescribed Sea Tour Lengths and Recommended Shore Tour Lengths

RANK	TOUR	DESCRIPTION	SEA	SHORE
			(IN MONTHS)	
ENS	Input	Pilot/NFO Training		Variable
LTJG-LT	Initial Sea	Fleet Squadron Tour in Warfare Specialty	36-42	
LT	First Shore	TRACOM,FRS,NPS, Test Pilot School		24-36
	Second Sea	Squadron, Ship's Company, Embarked Staff	24	
LCDR	Shore	Initial Acquisition Project Officer NAVAIR, SPAWAR, DPRO, NADEP RDT&E, Warfare CTRS		36
	Shore	T&E/FLE Supp, Acquisition Project Officer NAVAIR, SPAWAR, DPRO, NADEP RDT&E, Warfare Centers		36
CDR	Shore Course	DAU Program Manager		4
	Shore	Senior Level Acquisition, DEP Program Manager, Assistant Program Manager		36
CAPT	Shore	Senior Level Acquisition. NAVAIR, SPAWAR PEO, DPRO CO, TYCOM ACOS as Program Manager, Division Director		36

Note: NAVAIR: Naval Air Systems Command
SPAWAR: Space and Naval Warfare Systems Command
DPRO: Defense Contract Administration Services Plant Representative Office
NADEP: Navy Air Depot
DEP: Navy's Distributed Engineering Plant
TYCOM: Type Commander
ACOS: Assistant Chief of Staff
PEO: Program Executive Officer
From: Officer Transfer Manual (NAVPERS 15559B) Chapter 3, p. 3-16.

Table II.13. RL/Staff Officer (Aviation Maintenance Officer -Designator Code 152X) Prescribed Sea Tour Lengths and Recommended Shore Tour Lengths

RANK	TOUR	DESCRIPTION	SEA	SHORE
			(IN MONTHS)	
CDR and below	Sea	Aviation Maintenance Officer	36	
	Shore	Aviation Maintenance Officer		36
	Sea	Aviation Maintenance Officer	24	
	Shore	Aviation Maintenance Officer		36
CAPT	Shore	Aviation Maintenance Officer		36

From: Officer Transfer Manual (NAVPERS 15559B) Chapter 3, p. 3-17.

Table II.14. RL/Staff Officer (Special Duty-Intelligence-Designator Code 163X) Prescribed Sea Tour Lengths and Recommended Shore Tour Lengths

RANK	TOUR	DESCRIPTION	SEA	SHORE
			(IN MONTHS)	
ENS-LTJG	Sea	Intelligence Officer	24-36	
	Shore			36
LT-CDR	Sea	Intelligence Officer	24	
	Shore			36-48
CAPT	Sea	Intelligence Officer	24	
	Shore			36-48

From: Officer Transfer Manual (NAVPERS 15559B) Chapter 3, p. 3-18.

Table II.15. RL/Staff Officer (Special Duty-Public Affairs-Designator Code 165X) Prescribed Sea Tour Lengths and Recommended Shore Tour Lengths

RANK	TOUR	DESCRIPTION	SEA	SHORE
			(IN MONTHS)	
LCDR and below	Sea	Public Affairs Officer	24	
	Shore	Public Affairs Officer		36
CDR-CAPT	Sea	Public Affairs Officer	24	
	Shore	Public Affairs Officer		36

From: Officer Transfer Manual (NAVPERS 15559B) Chapter 3, p. 3-18.

Table II.16. Medical, Medical Service, Dental, Nurse Corps Prescribed Sea Tour Lengths and Recommended Shore Tour Lengths

RANK	TOUR	DESCRIPTION	SEA	SHORE
			(IN MONTHS)	
All	Sea	Medical, Medical Service, Dental Corps	24	
	Sea	Nurse Corps	12	
	Shore			36

From: Officer Transfer Manual (NAVPERS 15559B) Chapter 3, p. 3-18.

Table II.17. RL/Staff Officer (Special Duty-Oceanography-Designator Code 180X) Prescribed Sea Tour Lengths and Recommended Shore Tour Lengths

RANK	TOUR	DESCRIPTION	SEA	SHORE
			(IN MONTHS)	
ENS-CDR	Sea	METOC	24	
	Shore			36
CAPT	Sea	METOC	N/A	
	Shore			36
CDR	Shore	Command		24-36
CAPT	Shore	Command		24-36

Note: METOC: Meteorology and Oceanography Center
From: Officer Transfer Manual (NAVPERS 15559B) Chapter 3, p. 3-18.

Table II.18. RL/Staff Officer (Chaplain-Designator Code 410X) Prescribed Sea Tour Lengths and Recommended Shore Tour Lengths

RANK	TOUR	DESCRIPTION	SEA	SHORE
			(IN MONTHS)	
LT and below	Sea	Chaplain	24-30	
	Shore	Chaplain		24-36
LCDR	Sea	Chaplain	24-30	
	Shore	Chaplain		36
CDR/CAPT	Sea	Chaplain	24-30	
	Shore	Chaplain		36-48

From: Officer Transfer Manual (NAVPERS 15559B) Chapter 3, p. 3-20.

Table II.19. RL/Staff Officer (Civil Engineer Corps-Designator Code 510X) Prescribed Sea Tour Lengths and Recommended Shore Tour Lengths

RANK	TOUR	SEA	SHORE
		(IN MONTHS)	
ENS	Sea	24-30	
	Shore		24-36
LTJG/LT	Sea	24-30	
	Shore		36
LCDR	Sea	24-30	
	Shore		36
CDR/CAPT	Sea	24	
	Shore		36-48
	Sea Command	24	
	Shore Command		24-36

From: Officer Transfer Manual (NAVPERS 15559B) Chapter 3, p. 3-20.

As can be seen from Tables II.5 to II.19, the occupations to which the sea/shore rotation policy is applied require officers to face consecutively changing working conditions throughout their careers. The increase in age and rank of the officers does not change the rotation policy unless the officers change their occupation.

c. Overseas Duties

Overseas service is defined as military duty performed while assigned to a military installation or activity permanently based outside the 48 contiguous United States. Duty in Hawaii or Alaska is counted as overseas duty, but temporary duty in a foreign country is not, no matter how long the duty lasts. To be assigned to overseas duty, an officer must fulfill the following criteria:[17]

- Suitability as a representative of the United States
- Professional competence of the individual
- Number and suitability of accompanying family members as representatives of the United States
- Acceptable physical condition of his/her family members

The responsibility for determining suitability for overseas service rests with the CO of the transferring command. The CO of the transferring command conducts the screening and reports the results by NAVPERS 1300/16 (Report of Suitability for Overseas Assignment). The suitability decision factors are the medical fitness of the

17 Officer Transfer Manual (NAVPERS 15559B) Chapter 4, p. 4-1.

officer and his or her family members, the dental fitness of the officers and his or her family members*, alcohol-related problems, drug-related problems, physical fitness, disciplinary history, psychiatric disorders, performance, pregnancy (for overseas shore assignments, transfer must be executed such that the member arrives overseas prior to the seventh month; for overseas shipboard assignments, assignments will be deferred until four months after childbirth), financial stability, single parents/military couples with family members (this itself does not disqualify officers for overseas duty, but it must be pointed out to the assignment officer), and individual and family characteristics (all family members have to be screened for overseas assignment unless the officer is in receipt of unaccompanied orders for tour lengths of less than 24 months).[18]

Since family characteristics form the basis of this thesis, family-related issues about the overseas assignments receive greater attention. One of the major determinants of the location and the length of the overseas assignments is whether the officer will be accompanied or unaccompanied by his or her family members. For assignment in some countries, family members are not allowed to accompany the officers, and for most of the countries, the issue of the accompanying family members determines, and changes, the length of the overseas tour.

One of the other issues related to the family is the situation in which the officer has a dependent who is in the Exceptional Family Member (EFM) program. The overseas assignment is required to be made to the locations where the EFM will have educational and/or medical support available.[19]

Another issue about the effects of family characteristics on the overseas assignment is the Family Advocacy Program (FAP). Service members enrolled in FAP may be disqualified from overseas assignment. Assignment officers have to call the PERS-6 FAP branch prior to transmitting any overseas orders. Waivers to the FAP

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* Note: If family members are disqualified for medical or dental fitness factors, the officer may serve an unaccompanied overseas tour due to the urgency of the duty requirement.

18 Officer Transfer Manual (NAVPERS 15559B) Chapter 4, pp. 4-2, 4-4.

19 Ibid.

policy are not normally granted and require the approval of the Commander, Navy Personnel Command (CNPC).[20]

Divorce decrees concerning custody and control of family members are also important in overseas assignments, especially for the determination of the moving expenses paid by the government and overseas station allowances.[21]

For a married officer whose spouse is also a member of a military service, the tour of duty overseas is determined as follows:[22]

- Married service members accompanied or joined by command-sponsored family members serve the accompanied-by-family members tour
- Married service members assigned to or living in the same overseas location or locale serve the accompanied-by-family member tour when such a tour length is authorized for the duty station. The lack of concurrent travel, whether a result of personal reasons or operational requirements, may not have an impact on the stipulation that each service member of a military couple must, at a minimum, serve the accompanied-by-family member's tour. Curtailment of the last arriving service member's minimum tour to coincide with the tour completion date of the first arriving service member, in order to effect a joint spouse assignment from the military couple's overseas duty station, cannot be authorized without a waiver from PERS-4.
- Married service members assigned to different locations shall serve the "all others" tour (not accompanied by family members tour). However, when said service members establish a joint residence that is, reside together in government-approved family quarters, they serve the accompanied-by-family members tour, when such tour is authorized for the location or locale where they are residing.
- When a service member marries another service member while both are assigned overseas, their original tours are maintained, unless both service members voluntarily agree to serve the longer (accompanied-by-family members) tour at that location

Table II.20 shows the available overseas duty locations and the duty periods both for the officers who are accompanied by family members and those who are not. The regional differences in some of the countries are omitted in the list, since they have less importance than the country as a whole, but the period differences caused by

20 Ibid., pp. 4-5.

21 Ibid.

22 Ibid., pp. 4-15, 4-16.

the different regions are added to the table in order to show how these differences change the tour lengths.

Table II.20. Overseas Duty Tour Lengths (Other Than the Defense Attaché System) by Country or Area

	TOUR LENGTH IN MONTHS	
COUNTRY OR AREA	**ACCOMPANIED BY FAMILY MEMBERS**	**OTHERS**
Alaska	36	36
Antarctic Region	NA	TBD
Argentina	36	24
Australia	24/36	15/24
Austria	36	24
Bahamas	24	24
Bahrain	24	12
Belgium	36	24
Belize	24	12
Bermuda	36	24
Bolivia	24	18
Brazil	36	24
British Indian Ocean Territory	NA	12
Canada	24/36	12/18/24
Chile	36	24
Colombia	24	18
Cuba	30	18
Denmark	36	24
Egypt	24	18
El Salvador	NA	12
France	36	24
Germany	36	24
Gibraltar	36	24
Greece	NA/24/36	12/15/18/24
Guam	24/30	24/30
Hawaii	30/36	18/36
Hong Kong	36	24
Iceland	30	18
India	24	12
Indonesia	24	12
Israel	24	12
Italy	24/36	12/15/18/24
Jamaica	24	12
Japan	NA/24/36	12/15/18/24
Johnston Atoll	NA	12

	TOUR LENGTH IN MONTHS	
COUNTRY OR AREA	**ACCOMPANIED BY FAMILY MEMBERS**	**OTHERS**
Kenya	24	12/18
Korea	NA/24	12
Kuwait	24	12
Laos	NA	12
Malaysia	36	24
Mexico	24	18
Midway Island	NA	12
Morocco	24	15
Netherlands	36	24
New Zealand	36	24
Niger	24	12
Norway	36	24
Panama	NA/24	12
Paraguay	24	18
Peru	30	18
Philippine Island	NA/24	12/18
Portugal	24/36	15/24
Puerto Rico	NA/36	12/18/24
Qatar	24	12
Saudi Arabia	NA	12
Senegal	24	12
Singapore	36	24
Somalia	24	12
Spain	24/36	15/24
Thailand	24	18
Tunisia	24	18
Turkey	NA/24	12/15
United Arab Emirates	24	12
United Kingdom	24/36	18/24
West Indies	36	24

Note: More than one figure means that tour lengths differ at different regions in this country.
From: Derived from Officer Transfer Manual (NAVPERS 15559B), Figure 4-1.

d. Military Couples

Some of the regulations for the assignments of military couple are mentioned in the previous sections. Remaining issues related to the assignment policy for military couples are as follows:

- MILPERSMAN 1320-190 determines the military couple assignment policy. It states that PERS-451 is the responsible office for the assignments of military couples. The general policy is that the Chief of

Naval Personnel supports the collocation of Navy members married to other military members and every reasonable effort will be made to allow military couples to move together and/or serve together whenever possible.

- The collocation requests must be submitted by each member separately and a copy of their spouse's request must be enclosed with his/her own request. Members who are not collocated can request reassignment to a valid requirement in their spouse's area, providing the following criteria are met:
  - Member requesting to be transferred has completed one year on board current duty station at time of transfer and, if required, a contact relief is available. Every effort will be made to achieve collocation within one year of request.
  - Neither member is currently in or under orders to a training status. If one or both members are entering a training status, their requests will be kept on file to help facilitate spouse collocation upon completion of training.
  - Military couples cannot be permanently assigned to the same ship or same shipboard deployable command (e.g., tender with multiple unit identification codes or carrier and its associated air wing).
  - Military couples cannot normally be assigned involuntarily to simultaneous sea duty. However, military couples involving first term personnel, initial accessions, and/or personnel completing a training assignment, may require assignment to simultaneous sea duty consistent with the needs of Navy and the member's training.[23]

C. CHAPTER SUMMARY

In this chapter, officer duties in the Navy, the Navy's assignment policy, sea/shore rotations, overseas duty, and the assignments of the military couples are discussed. Since officer occupations in the Navy and the assignments of officers form two main fields in the thesis, various tables are used to emphasize differences within the Navy.

23 https://buperscd.technology.navy.mil/bup_updt/upd_CD/BUPERS/MILPERS/Articles/1320-190.pdf MILPERSMAN 1320-190, p. 2, November 2002.

III. LITERATURE REVIEW

A. INTRODUCTION

The United States has one of the highest divorce rates of any nation in the world. The US military is drawn mainly from the population of adults between the ages of 18 and 45 years, so it will tend to reflect many of the same social, economic, and political trends of this age group in the larger society. It is not surprising, then, to find certain national trends in marriage and divorce present in the military. It is also not surprising to find that the marital status of military members can affect their on-the-job performance, as well as their tendencies to leave or stay in the military, their chances for promotion, their general health and well being, and their likelihood of having disciplinary problems. Simply put, personal relationships and the stability of one's marriage or family life can have a far-reaching effect on many aspects of behavior, occupational performance and certain career choices. At the same time, it is logical to assume that the demands of one's job and any related stress can affect personal relationships or even the stability of a marriage. Just as marital discord or harmony can have an impact on how a military member performs his or her work, so, too, can the stresses or nature of work affect one's marriage.

This literature reviews focuses first on various theories relating to marriage and divorce. Historical trends in marriage and divorce are then explored for the United States and the Navy. The literature review then shifts focus to the previous studies regarding the effects of marital status on military personnel. Finally, the results of the review are used to formulate hypotheses on the possible effects of occupational conditions on a military member's marriage.

B. MARRIAGE AND DIVORCE THEORIES

1. Marriage Theory

As Johnson mentions in her thesis, citing Sheehy (1976):

> Adult life proceeds by developmental stages, each often marked by a crisis or turning point that guides individual decision making. … Marital

> understanding and satisfaction are curvilinear over the life cycle of a family.[24]

This statement emphasizes two different points. First, marriage has a sudden and great impact on individuals, and, second, the effects of marriage continue and change throughout the life cycle of a family. To better explain marriage, the theories about the reasons and the effects of marriage, therefore, should not only include marriage decisions, but also the changes within families, such as the birth of a child, as well.

The decision to marry is one of the most important decisions of an individual's entire life, and all marriage decisions are affected by many different conditions, such as social, cultural, economical, psychological, and health factors. Thus, analyzing the reasons behind the decision to marry is very complicated. Due to the complexity of not doing so, researchers generally prefer to analyze marriage in terms of only one factor.

Although his theories about marriage focus mostly on economic factors, in this thesis, Gary S. Becker's work is used to explain marriage.[25] Becker's theories about marriage are still accepted as an important resource by researchers because of their simplicity and their capability to relate the decisions about marriage to economic factors.

Becker, using utility functions and mathematical formulas, explains the basic characteristics of marriage, such as why single women and men work more than those who are married, and why the effect of an increase in wage rates alone on the incentive to marry is less straightforward. However, to focus solely on the major determinants of marriage decisions, all of his theories, most of which concern economic well-being, are not mentioned in this thesis.

Becker offers two basic assumptions: (1) each person tries to find a mate who maximizes his or her well-being, with well-being measured by the consumption of household-produced commodities; and (2) the marriage market is assumed to be in equilibrium, in the sense that no person could change mates and become better off. According to Becker, marriage means that men and women share the same household ,

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[24] Johnson, Roni S., Civilian Husbands in the Military Family: Current Issues and Future Concerns, Master's Thesis, Naval Postgraduate School, Monterey, California, March 1998, p. 24.

[25] Becker, S. Gary, A Theory of Marriage I-II, Journal of Political Economy, Volume 81, Number 4, July/August 1973, pp. 813-846 and Volume 82, Number 2, March/April 1974, pp. S11-S26.

and marriage occurs if, and only if, both are better-off, that is, their utility increases. The utility gained from the marriage covers a broad range of human activities and goals, such as the quality and quantity of children, prestige, and the quality of meal, recreation, companionship, love, and health status.

The Vital and Health Statistics Report 2002 also mentions the benefits of marriage. According to this report, the differences between married and unmarried people can be summarized as follows: "Compared with unmarried people, married men and women tend to have lower mortality, less risky behavior, more monitoring of health, more compliance with medical regimens, higher sexual frequency, more satisfaction with their sexual lives, more savings, and higher wages."[26]

The utilities mentioned by Becker and the Vital and Health Statistics Report are valid for everybody. In addition, marriage also provides many different advantages for specific groups, such as military personnel. Elizabeth A. Wallace and Kenneth C. Rose analyze the advantages of marriage for military personnel in their joint thesis. Wallace and Rose first mention the benefits of marriage in general by citing Tullock and McKenzie:

> From an economic perspective, the benefits of marriage and family are two-fold: spouses have the opportunity to produce things not readily duplicated in non-marriage situations, and the family operating as a single household can produce many goods and services more efficiently than can several single person households. The list of "things" produced within a marriage situation includes …children, prestige and status that can affect employment and the realm of friends, companionship that is solid and always there, a family style sex life…and family life in general.[27].

Wallace and Rose then describe the advantages of marriage for a military service member as follows:

> A military member's marital status is a unique factor in that it reflects both an economic and a demographic influence. This combination of influences exists because of the economic benefits, both pecuniary and non-pecuniary, gained by the military member when dependents are

[26] Cohabitation, Marriage, Divorce, and Remarriage in The United States, Vital and Health Statistics, Series 23, Number 22, July 2002, p. 3.

[27] Wallace, Elizabeth A., Rose, Kenneth C., Divorce and Family Support Services: Problems and Prospects for the U.S. Navy, Master's Thesis, Naval Postgraduate School, Monterey, California, March 1991, p. 17.

> acquired. Dependents can be a spouse, a child, or a financially dependent relative. The benefits of having dependents include increased income, separation allowances, Basic Allowance for Quarters (BAQ) computed at the "with dependents" rate, Variable Housing Allowance (VHA), and non-pecuniary benefits such as eligibility for government housing, low-cost or free medical care and commissary and exchange shopping privileges.[28]

Since Becker analyzes marriage decisions within the total marriage market, besides the personal decisions, he also emphasizes the importance of sex ratios on the total number of marriages. Becker gives the example of a war, mentioning,

> An aftermath of a destructive war is many unmarried young women pursuing relatively few men available, and men usually either marry late and not at all in rural areas that have lost many young women to cities. Statistical studies indicate that the fraction of women currently married at different ages is positively related to the appropriate sex ratio.[29]

Based on this theory, it can be thought that the number of marriages for military personnel will be affected by the sex ratios both within the military and within the civilian population, and especially at the location of the duties.

Although there are some exceptions, most marriages are based on love, caring, and the desire to have children. For this reason, Becker emphasizes the importance of love, caring, and children on marriages in his study. Becker believes that almost all of the utilities related with marriage can be gained through purchasing by a single person, except the desire to raise one's own children and "the physical and emotional involvement called love". Although there are substitutes for other utilities of marriages, such as recreation, the quality of meals and even sex, there is no substitute for one's own child. Based on this assumption, because of the importance of the identification of the father in some communities, one male can marry more than one woman, but no woman can marry more than one man.[30]

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[28] Wallace, Elizabeth A., Rose, Kenneth C., Divorce and Family Support Services: Problems and Prospects for the U.S. Navy, Master's Thesis, Naval Postgraduate School, Monterey, California, March 1991, p. 2.

[29] Becker, S. Gary, A Theory of Marriage Part I, Journal of Political Economy, Volume 81, Number 4, July/August 1973, p. 838.

[30] Ibid.

Muchinsky, citing Silberstein (1992), mentions the effects of the birth of children on marriages and states:

> Most dual-career couples have a work-oriented lifestyle prior to the birth of children. However, once there are children, the dual-career system undergoes a profound shift. The pragmatic demands of home life increase dramatically and cannot be postponed, rescheduled, or ignored. Both men and women attest that the arrival of children creates the greater conflict between work and family.[31]

As mentioned in Chapter II, since military duties are less flexible, civilian spouses mostly "sacrifice" their careers to take care of their children and the situation, of course, is more problematic for dual-military couples.

Love and caring, and other emotional attachments, are the other important factors in marriage decisions, and also for the survival of healthy marriages. According to Becker, if a man cares about a woman, or vice versa,

> male's utility would depend on the commodity consumption of female as well as his own...Household commodities are transferable within (without any loss) but not between households. Thus if each of the spouses fully cares for the other, the total amount of household production is shared by the couple equally, which is consistent with the popular belief that persons in love "share."[32]

Since love raises the commodity output, and caring increases total income by increasing the importance of family commodities, the families that have love and caring have more income and total output than others.

Becker also explains the effects of beauty, intelligence, and education on marriages. According to Becker:

> The gain from marriage also depends on traits, such as beauty, intelligence, and education, that affect nonmarket productivity as well, perhaps, as market opportunities. An increase in the value of traits that have a positive effect on nonmarket productivity, market productivity held constant, would generally increase the gain from marriage. Presumably this helps explain why, for example, less attractive or less intelligent

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[31] Muchinsky, Paul M., Psychology Applied to Work, 2000, p. 321.

[32] Becker, S. Gary, A Theory of Marriage Part II, Journal of Political Economy, Volume 82, Number 2, March/April 1974, p. S14.

> persons are less likely to marry than are more attractive or more intelligent persons.[33]

Besides beauty, intelligence and education, there are other characteristic issues related to marriage. As stated in the Vital and Health Statistics Report 2002:

> For first marriages are less likely to break up, and more likely to succeed, if the wife grew up in a two parent home, is Asian was 20 years of age or over at marriage, did not have any children when she got married, is college-educated, has more income, or has any religious affiliation…The probability of first marriage is lower for non-Hispanic black women than for other woman…First marriage is less likely for woman who report that their religion is not important.[34]

Early marriage is one of the topics analyzed in this study, and Becker has many theories concerning the reasons for early marriages. As Becker writes:

> The age of entry (to the marriage market) would be earlier the larger the number of children desired, the higher the expected lifetime income, and lower the level of education…(In order to marry,) he searches until the value to him of any expected improvement in the mate he can find is no greater than the cost of his time and other inputs into additional search… People marry relatively early when they are lucky in their search. They also marry early, however, when they are unduly pessimistic about their prospects of attracting someone better (or unduly optimistic about persons they have already met). Therefore early marriages contain both lucky and pessimistic persons, while later marriages contain unlucky and optimistic ones.[35]

As mentioned in Chapter II, the important issue for the military is whether or not some military assignments and duties, such as overseas duties, cause officers to be pessimistic, mostly in terms of finding sufficient personal time to search for a better spouse, and cause them to marry early and have a less stable marriage.

Another dimension concerning the decision to marry is the existing financial situation of an individual before marriage. Becker, citing the U.S. Bureau of the Census (1971) and Keeley (1972), finds a direct relationship between income and marriage,

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[33] Becker, S. Gary, A Theory of Marriage Part I, Journal of Political Economy, Volume 81, Number 4, July/August 1973, p. 822.

[34] Cohabitation, Marriage, Divorce, and Remarriage in The United States, Vital and Health Statistics, Series 23, Number 22, July 2002, p. 2.

[35] Becker, S. Gary, A Theory of Marriage Part II, Journal of Political Economy, Volume 82, Number 2, March/April 1974, pp. S21-22.

where "when years of schooling and a few other variables are held constant, higher-wage persons appear to marry earlier than others."[36] Although this is true for men, an increase in wages has the reverse effect on women, because since the working hours of females are reduced after they marry, an increase in their income affects their decision to marry negatively. Generally, officers have regular and relatively higher income than an average citizen, excluding other factors. Thus, officers should have higher marriage rates than civilians, based on the income/marriage relationship theory.

2. Divorce Theory

No newlywed couple expects to see their marriage end in divorce. However, divorces are caused by selecting the wrong spouse in the beginning and by thinking that any mismatched characteristics may disappear in the future. Divorces are also caused by internal effects, such as the loss of love and caring, and by external effects, such as pressures from relatives and friends that take place afterwards. The consequences of a divorce are not only the loss of the benefits gained by the marriage, but additional problems that mostly affect the individuals. For this reason, many military and civilian support services are established to help divorced individuals. Furthermore, the decision to divorce is not easy due to a variety of factors, such as the restrictions of a religion, the concern about earning sufficient income to live on one's own, the presence of children, and the optimistic thought that everything might be fine one day. Many other family support services are, therefore, established to help families that have such problems.

Becker discusses the causes and the effects of divorce in his study. Instead of directly mentioning divorce, he prefers to focus on separation first. According to Becker:

> The incentive to separate is smaller the more important are investments that are specific to a particular marriage. The most obvious and dominant example of marriage-specific investment is children, although knowledge of the habits and the attitudes of one's mate are also significant. Since specific investments would grow, at least for quite a while, with the duration of marriage, the incentive to separate would tend to decline with duration. The incentive to separate is greater, on the other hand, the more convinced a person becomes that the marriage was a mistake. This conviction could result from additional information about one's mate or other potential mates. (Some search goes on, perhaps subconsciously,

[36] Becker, S. Gary, A Theory of Marriage Part I, Journal of Political Economy, Volume 81, Number 4, July/August 1973, p. 822.

> even while one is married). If the mistake is considered large enough to outweigh the loss in marriage-specific capital, separation and perhaps divorce will follow…Couples with relatively large differences in education, intelligence, race, or religion, because they were unlucky searchers, should be more likely separate and should have smaller differences when they remarry.[37]

The negative effects of divorce are very high. For example, according to the Vital and Health Statistics Report 2002, the disadvantages of divorce include the following:

> Compared to married individuals, divorced persons exhibit lower levels of psychological well-being, more health problems, greater risk of mortality, more social isolation, less satisfying sex lives, more negative life events, greater levels of depression and alcohol use, and lower levels of happiness and self-expectance.[38]

Focusing on the Navy, Wallace and Rose write:

> The divorce of a military member, while a highly personal and emotionally changed event for the individual, implies three significant problems for the Navy in the areas of decreased productivity, unit readiness, and retention.[39]

The consequences of divorce may be even worse for children. According to the Vital and Health Statistics Report 2002:

> Adverse outcomes accrue to children of divorce and children raised in single-parent families. Although not all single parent families are the result of divorce and not all divorced mothers remain single, virtually all children of divorce spend some time in a single-parent household until the mother remarries. Even when the mother does remarry, studies suggest that children in step-families have similar risks of adverse outcomes as children in single parents: both groups of children do worse than children living with two biological parents in terms of academic achievement, depression, and behavioral problems such as drug and alcohol abuse, premarital sexual intercourse and being arrested.[40]

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[37] Becker, S. Gary, A., Theory of Marriage Part II, Volume 82, Number 2, March/April 1974, p. S23.

[38] Cohabitation, Marriage, Divorce, and Remarriage in The United States, Vital and Healt h Statistics, Series 23, Number 22, July 2002, p. 3.

[39] Wallace, Elizabeth A., Rose, Kenneth C., Divorce and Family Support Services: Problems and Prospects for the U.S. Navy, Master's Thesis, Naval Postgraduate School, Monterey, California, March 1991, p. 22.

[40] Cohabitation, Marriage, Divorce, and Remarriage in The United States, Vital and Health Statistics, Series 23, Number 22, July 2002, p. 4.

The external environment, such as laws and religion, can exercise a great impact on encouraging or discouraging individuals both to marry and to divorce. According to Becker, when divorce becomes easier, the fraction of persons legally married may actually increase because of the effect on age when marrying. Citing Kogut (1972) and Freiden (1972), Becker mentions that, in Latin America, where divorce is usually impossible, a relatively small fraction of the adult population is legally married because consensual unions are so important; and in the United States, a smaller fraction of women have been married in states having more difficult divorce laws.[41]

As mentioned in Chapter II, family and job-related problems can affect men and women differently. This is another reason that makes decisions about divorce harder. The same negative circumstances may be perceived by one individual as a sufficient reason to divorce, while his/her spouse may not think so. An example of this difference in the perception of a spouse is cited by Muchinsky:

> (there is) a stronger correlation between work/family conflict and job satisfaction for women (-.35) than for men (-.29). Likewise, the correlation between work/family conflict and life satisfaction was stronger for women (-.42) than for men (-.32). Then there is a greater association for woman than men in resolving issues of work/family conflict and feeling satisfaction.[42]

Due to this difference between men and women, in times of trouble, women may not get the help and understanding expected from their husbands, which will add even more stress to their relationship.

Remarrying becomes an issue for divorced people mostly after a period of healing. Their experiences from their former marriage may eventually lead them to remarry. Although it is more likely that they will not make the same mistakes again that caused them to divorce in the first place, having enough courage to start a new marriage is again not easy. For this reason, there is a significant difference in the remarriage ratios

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41 Becker, S. Gary, A., Theory of Marriage Part II, Volume 82, Number 2, March/April 1974.

42 Muchinsky, Paul M., Psychology Applied to Work, 2000, p. 318.

of different groups of people. For example, the probability of remarriage is highest among divorced white women and lowest among divorced black women.[43]

The marriage and divorce theories presented in this chapter seek to explain the main reasons why individuals marry and divorce. However, the main factor is always the personal assessments of the individual making these decisions.

C. MARITAL STATUS TRENDS IN THE UNITED STATES AND IN THE U.S. NAVY

1. Marital Status Trends in the United States

Marital status trends in the United States are presented in three different tables. Table III.1 displays the numbers and the rates of marriage and divorce in the United States between 1870 and 1998. Table III.2 displays the population totals for each marit al status, sorted by gender and race, and covers the period between 1980 and 1998. Table III.3 displays the distribution of men and women in each marital status in 1998. By using these three tables, the trends for marriage and divorce in the United States since 1870 and marital status differences by gender, race/ethnicity and age are analyzed.

Table III.1. Marriage and Divorce Rates in the United States

YEAR	TOTAL POPULATION (in thousands)	NUMBER OF MARRIAGES (in thousands)	NUMBER OF DIVORCES AND ANNULMENTS (in thousands)	DIVORCES PER 100 MARRIAGES	MARRIAGE RATE PER 1000 POPULATION	MARRIAGE RATE PER 1000 WOMEN 15 AND OVER	DIVORCE RATE PER 1000 POPULATION	DIVORCE RATE FOR MARRIED WOMEN 15 AND OVER
1870	39,905	352	11	3.1	8.8	30.3	0.3	-
1880	50,262	453	20	4.3	9.0	29.8	0.4	-
1890	63,056	570	33	5.9	9.0	29.2	0.5	3.0
1900	76,094	709	56	7.9	9.3	29.2	0.7	4.0
1910	92,407	948	83	8.8	10.3	31.4	0.9	4.7
1920	106,461	1,274	171	13.4	12.0	36.0	1.6	8.0
1925	115,829	1,188	175	14.8	10.3	30.3	1.5	7.2
1930	123,077	1,127	196	17.4	9.2	26.3	1.6	7.5
1935	127,250	1,327	218	16.4	10.4	29.0	1.7	7.8
1945	139,928	1,613	485	30.1	12.2	30.5	3.5	14.4
1950	152,271	1,667	385	23.1	11.1	29.6	2.6	10.3
1955	165,931	1,531	377	24.6	9.3	25.7	2.3	9.3

[43] Cohabitation, Marriage, Divorce, and Remarriage in The United States, Vital and Health Statistics, Series 23, Number 22, July 2002, p. 3.

YEAR	TOTAL POPULATION (in thousands)	NUMBER OF MARRIAGES (in thousands)	NUMBER OF DIVORCES AND ANNULMENTS (in thousands)	DIVORCES PER 100 MARRIAGES	MARRIAGE RATE PER 1000 POPULATION	MARRIAGE RATE PER 1000 WOMEN 15 AND OVER	DIVORCE RATE PER 1000 POPULATION	DIVORCE RATE FOR MARRIED WOMEN 15 AND OVER
1960	180,671	1,523	393	25.8	8.5	23.9	2.2	9.2
1965	194,303	1,800	479	26.6	9.3	25.9	2.5	10.6
1970	205,052	2,159	708	32.8	10.6	28.3	3.5	14.9
1975	215,973	2,153	1,036	48.1	10.0	25.6	4.8	20.3
1980	227,225	2,390	1,189	49.7	10.6	26.1	5.2	22.6
1985	237,924	2,413	1,190	49.3	10.1	24.9	5.0	21.7
1990	249,439	2,443	1,178	48.2	9.8	24.1	4.7	20.4
1995	262,765	2,336	1,169	50.0	8.9	22.0	4.4	19.6
1998p	270,299	2,244	1,135	50.6	8.3	20.5	4.2	18.9

From: http://beverlylahayinstitute.org/events/1999-10_marriage/20_table-1.gif.

As seen in Table III.1, the divorce rate per 100 marriages has increased continuously, except for 1935 and 1990, since 1870; currently, the divorce rate is approximately 50 percent or half of all marriages in the United States. On the other hand, the marriage rate has remained almost the same since 1870. In terms of divorces for women, except in 1940 and 1945, the divorce rate has continuously increased until 1980 and has slightly decreased afterwards.

Table III.2. Marital Status of Population, by Gender and Racial/Ethnic Group: 1980-1998

	TOTAL				MALE				FEMALE			
	1980	1990	1995	1998	1980	1990	1995	1998	1980	1990	1995	1998
Total (x)	159.5	181.8	191.6	197.4	75.7	86.9	92.0	95.0	83.8	95.0	99.6	102.4
Never Married	32.3	40.4	43.9	46.6	18.0	22.4	24.6	25.5	14.3	17.9	19.3	21.0
Married	104.6	112.6	116.7	117.9	51.8	55.8	57.7	58.6	52.8	56.7	58.9	59.3
Widowed	12.7	13.8	13.4	13.6	2.0	2.3	2.3	2.6	10.8	11.5	11.1	11.0
Divorced	9.9	15.1	17.6	19.4	3.9	6.3	7.4	8.3	6.0	8.8	10.3	11.1
Percent of Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Never Married	20.3	22.2	22.9	23.6	23.8	25.8	26.8	26.9	17.1	18.9	19.4	20.5
Married	65.5	61.9	60.9	59.7	68.4	64.3	62.7	61.7	63.0	59.7	59.2	57.9
Widowed	8.0	7.6	7.0	6.9	2.6	2.7	2.5	2.7	12.8	12.1	11.1	10.8
Divorced	6.2	8.3	9.2	9.8	5.2	7.2	8.0	8.8	7.1	9.3	10.3	10.8

	TOTAL				MALE				FEMALE			
	1980	**1990**	**1995**	**1998**	**1980**	**1990**	**1995**	**1998**	**1980**	**1990**	**1995**	**1998**
White,Total	139.5	155.5	161.3	165.3	66.7	74.8	78.1	80.4	72.8	80.6	83.2	85.0
Never Married	26.4	31.6	33.2	35.1	15.0	18.0	19.2	20.0	11.4	13.6	14.0	15.2
Married	93.8	99.5	102.0	102.6	46.7	49.5	50.6	51.3	47.1	49.9	51.3	51.3
Widowed	10.9	11.7	11.3	11.5	1.6	1.9	1.9	2.1	9.3	9.8	9.4	9.3
Divorced	8.3	12.6	14.8	16.1	3.4	5.4	6.3	7.0	5.0	7.3	8.4	9.1
Percent of Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Never Married	18.9	20.3	20.6	21.2	22.5	24.1	24.6	24.8	15.7	16.9	16.9	17.8
Married	67.2	64.0	63.2	62.1	70.0	66.2	64.9	63.8	64.7	61.9	61.7	60.4
Widowed	7.8	7.5	7.0	6.9	2.5	2.6	2.5	2.6	12.8	12.2	11.3	11.0
Divorced	6.0	8.1	9.1	9.8	5.0	7.2	8.1	8.7	6.8	9.0	10.1	10.7
Black, Total	16.6	20.3	22.1	23.1	7.4	9.1	9.9	10.3	9.2	11.2	12.2	12.8
Never Married	5.1	7.1	8.5	9.0	2.5	3.5	4.1	4.2	2.5	3.6	4.4	4.8
Married	8.5	9.3	9.6	9.6	4.1	4.5	4.6	4.7	4.5	4.8	4.9	5.0
Widowed	1.6	1.7	1.7	1.8	0.3	0.3	0.3	0.4	1.3	1.4	1.4	1.4
Divorced	1.4	2.1	2.4	2.7	0.5	0.8	0.8	1.0	0.9	1.3	1.5	1.7
Percent of Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Never Married	30.5	35.1	38.4	38.9	34.3	38.4	41.7	40.9	27.4	32.5	35.8	37.3
Married	51.4	45.8	43.2	41.8	54.6	49.2	46.7	45.3	48.7	43.0	40.4	38.9
Widowed	9.8	8.5	7.6	7.6	4.2	3.7	3.1	3.7	14.3	12.4	11.3	10.7
Divorced	8.4	10.6	10.7	11.7	7.0	8.8	8.5	10.1	9.5	12.0	12.5	13.1
Hispanic, Total	7.9	13.6	17.6	19.8	3.8	6.7	8.8	10.1	4.1	6.8	8.8	9.8
Never Married	1.9	3.7	5.0	5.9	1.0	2.2	3.0	3.5	0.9	1.5	2.1	2.4
Married	5.2	8.4	10.4	11.7	2.5	4.1	5.1	5.8	2.6	4.3	5.3	5.9
Widowed	0.4	0.5	0.7	0.7	0.1	0.1	0.2	0.1	0.3	0.4	0.6	0.6
Divorced	0.5	1.0	1.4	1.5	0.2	0.4	0.6	0.6	0.3	0.6	0.8	0.9
Percent of Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Never Married	24.1	27.2	28.6	29.7	27.3	32.1	33.8	34.8	21.1	22.5	23.5	24.3
Married	65.6	61.7	59.3	58.9	67.1	60.9	57.9	57.5	64.3	62.4	60.7	60.3
Widowed	4.4	4.0	4.2	3.8	1.6	1.5	1.8	1.3	7.1	6.5	6.6	6.3
Divorced	5.8	7.0	7.9	7.7	4.0	5.5	6.6	6.4	7.6	8.5	9.2	9.1

Note (x): Persons 18 years old and over (in millions)

From: http://www.census.gov/prod/99pubs/p20-514u.pdf, November 2002

As seen in Table III.2, the ratios for both men and women, who never married and who divorced, have increased continuously between 1980 and 1998. On the other hand, the ratios for married and widowed men and women have decreased continuously. In terms of race/ethnicity, whites have the same trends as the entire population, except the widowed white male rate, which was relatively constant. Blacks have the same trends, except the never married and divorced male rates for the year 1998, where these rates show opposite trends for this particular year. For Hispanics, never married and married rates are consistent with the U.S. population. However, the rates for widowed are different from those of other races, and although the divorced rates increased for both male and female Hispanics until 1995, as with other races, in 1998, the rate decreased slightly.

Table III.3. Marital Status of the Population, by Gender and Age: 1998

GENDER AND AGE	NUMBER OF PERSONS (1000)					PERCENT DISTRIBUTION				
	Total	Never Married	Married	Widowed	Divorced	Total	Never Married	Married	Widowed	Divorced
MALE	95,009	25,518	58,601	2,567	8,322	100.0	26.9	61.7	2.7	8.8
18-19	3,807	3,706	91	-	10	100.0	97.3	2.4	-	0.3
20-24	8,826	7,360	1,332	-	133	100.0	83.4	15.1	-	1.5
25-29	9,450	4,822	4,219	10	398	100.0	51.0	44.6	0.1	4.2
30-34	10,076	2,939	6,345	20	773	100.0	29.2	63.0	0.2	7.7
35-39	11,299	2,444	7,598	44	1,213	100.0	21.6	67.2	0.4	10.7
40-44	10,756	1,676	7,633	50	1,397	100.0	15.6	71.0	0.5	13.0
45-54	16,598	1,481	12,665	150	2,303	100.0	8.9	76.3	0.9	13.9
55-64	10,673	572	8,559	275	1,266	100.0	5.4	80.2	2.6	11.9
65-74	7,992	328	6,331	707	626	100.0	4.1	79.2	8.8	7.8
75 - over	5,533	190	3,829	1,311	202	100.0	3.4	69.2	23.7	3.7
FEMALE	102,403	21,043	59,255	11,027	11,078	100.0	20.5	57.9	10.8	10.8
18-19	3,780	3,565	211	-	5	100.0	94.3	5.6	-	0.1
20-24	8,788	6,178	2,372	17	222	100.0	70.3	27.0	0.2	2.5
25-29	9,546	3,689	5,298	35	525	100.0	38.6	55.5	0.4	5.5
30-34	10,282	2,219	7,044	55	964	100.0	21.6	68.6	0.5	9.4
35-39	11,392	1,626	8,145	138	1,484	100.0	14.3	71.5	1.2	13.0
40-44	11,015	1,095	8,016	166	1,738	100.0	9.9	72.8	1.5	15.8
45-54	17,459	1,263	12,345	697	3,154	100.0	7.2	70.8	4.0	18.1
55-64	11,582	538	7,847	1,526	1,671	100.0	4.6	67.8	13.2	14.4

GENDER AND AGE	NUMBER OF PERSONS (1000)					PERCENT DISTRIBUTION				
	Total	Never Married	Married	Widowed	Divorced	Total	Never Married	Married	Widowed	Divorced
65-74	9,882	425	5,420	3,155	882	100.0	4.3	54.8	31.9	8.9
75- over	8,677	446	2,558	5,239	433	100.0	5.1	29.5	60.4	5.0

From: http://www.census.gov/prod/99pubs/p20-514u.pdf, November 2002

Table III.3 shows the effects of age on the marital status of both men and women. Some of the findings from Table III.3 are: (1) men marry later than women; (2) women live longer than men; (3) except for the 18-19 age group, there are more divorced women than divorced men in each age group; and (4) the 45-54 age group has the highest percentages of divorce for both men and women.

2. Marital Status Trends in the U.S. Navy

Before showing the marital status tables, it is useful to summarize some of the changes in demographic characteristics of U.S. Navy officers. Table III.4 lists race/ethnicity, gender, mean age, and mean service time for the officers between the years 1973 and 2000. According to Table III.4, between 1973 and 2000: (1) the percentage of black officers has increased 6.2 times; (2) the percentage of Hispanic officers has increased 6.7 times; (3) the percentage of female officers has increased 2.9 times; (4) the mean age of officers increased 7 percent; and (5) the mean service period increased 14 percent. Therefore, when comparing the marital status of officers at different years, demographic changes within the Navy should also be taken into account.

Table III.4. End Strength Composition of Active Component Navy Officers, 1973-2000

YEAR	NAVY ACTIVE COMPONENT OFFICERS								
	END STRENGTH								
	TOTAL	BLACK		HISPANIC		FEMALE		MEAN AGE	MEAN SERVICE (in months)
		#	%	#	%	#	%		
1973	66,337	687	1.0	537	0.8	3,445	5.2	32.1	116.3
1974	63,380	758	1.2	566	0.9	3,639	5.7	32.4	117.2
1975	60,422	810	1.3	260	0.4	3,486	5.8	32.5	118.1
1976	59,992	925	1.5	294	0.5	3,567	5.9	32.7	120.4
1977	60,274	1,104	1.8	340	0.6	3,779	6.3	32.9	121.8
1978	59,672	1,271	2.1	347	0.6	3,967	6.6	33.0	122.1
1979	59,189	1,317	2.2	363	0.6	4,292	7.3	32.9	120.1
1980	60,237	1,446	2.4	412	0.7	4,859	8.1	32.8	118.4
1981	62,678	1,649	2.6	485	0.8	5,329	8.5	32.9	118.2
1982	64,571	1,790	2.8	562	0.9	5,724	8.9	33.0	118.1
1983	66,874	1,925	2.9	673	1.0	6,303	9.4	33.0	118.2
1984	65,796	1,964	3.0	818	1.2	6,532	9.9	32.9	117.9
1985	67,521	2,144	3.2	925	1.4	6,888	10.2	33.0	118.3
1986	68,922	2,261	3.3	1,184	1.7	7,213	10.5	33.1	119.6
1987	69,071	2,304	3.3	1,243	1.8	7,195	10.4	33.2	121.5
1988	69,576	2,433	3.5	1,360	2.0	7,324	10.5	33.4	123.3
1989	69,475	2,536	3.7	1,528	2.2	7,449	10.7	33.4	123.1
1990	69,426	2,721	3.9	1,643	2.4	7,779	11.2	33.6	124.3
1991	67,980	2,784	4.1	1,697	2.5	7,888	11.6	33.9	126.2
1992	66,253	2,860	4.3	1,745	2.6	8,150	12.3	34.0	126.9
1993	63,608	2,881	4.5	1,786	2.8	8,113	12.8	34.1	127.7
1994	59,265	2,908	4.9	1,783	3.0	7,847	13.2	33.9	127.4
1995	56,408	2,989	5.3	1,864	3.3	7,775	13.8	34.0	127.8
1996	55,602	3,063	5.5	1,941	3.5	7,748	13.9	34.1	129.0
1997	54,382	3,144	5.8	2,046	3.8	7,704	14.2	34.2	129.8
1998	53,206	3,226	6.1	2,133	4.0	7,694	14.5	34.2	130.3
1999	52,136	3,267	6.3	2,706	5.2	7,669	14.7	34.3	131.0
2000	51,540	3,354	6.5	2,811	5.5	7,736	15.0	34.3	132.1

From: U.S. Department of Defense, Population Representation in the Military Services, Fiscal Year 2000, February 2002.

Table III.5 through III.14 show marital status trends in the Navy. Although the main purpose is to present the most recent and detailed information, some relatively older information is also used, to cover a wider range of variables. First, recent marital status information of military personnel from different branches of service are provided to allow comparisons between the separate armed forces. Then, some time-based information is given. Finally, statistics showing trends in the marital status of female Navy officers are presented.

Table III.5 summarizes the married officer information in Fiscal Year 2000. The percentage of married male officers in the Navy is lower than in all the other forces, and the percentage of married female officers in the Navy is only higher than that of female officers in the Marine Corps. In addition, the percentages of dual marriages in the Navy are far below those in the other services. This table suggests that getting married, and remaining married, may be relatively more difficult for Navy officers than for officers in the other services.

Table III.5. Fiscal Year 2000 Active Component Officers Who were Married, and in Dual-Service Marriages by Gender and Service (Number and Percent)

GENDER	END-STRENGTH	MARRIED		MARRIED WHO WERE IN DUAL-SERVICE MARRIAGES	
		NUMBER	PERCENT	NUMBER	PERCENT
NAVY					
MALE	43,804	29,373	67.1	473	1.6
FEMALE	7,736	3,538	45.7	619	17.5
TOTAL	51,540	32,911	63.9	1,092	3.3
ARMY					
MALE	55,355	40,592	73.3	2,541	6.3
FEMALE	9,997	5,391	53.9	2,600	48.2
TOTAL	65,352	45,983	70.4	5,141	11.2
MARINE CORPS					
MALE	15,196	10,534	69.3	361	3.4
FEMALE	812	336	41.4	220	65.5
TOTAL	16,008	10,870	67.9	581	5.3
AIR FORCE					
MALE	57,203	43,919	76.8	2,365	5.4
FEMALE	11,819	6,673	56.5	2,488	37.3

GENDER	END-STRENGTH	MARRIED		MARRIED WHO WERE IN DUAL-SERVICE MARRIAGES	
		NUMBER	PERCENT	NUMBER	PERCENT
TOTAL	69,022	50,592	73.3	4,853	9.6
DoD					
MALE	171,558	124,418	72.5	5,740	4.6
FEMALE	30,364	15,938	52.5	5,927	37.2
TOTAL	201,922	140,356	69.5	11,667	8.3

From: Department of Defense, Population Representation in the Military Services, Fiscal Year 2000, February 2002.

Tables III.6 through III.10 are based on the responses of military personnel in the 1999 Active Duty Survey of Members. Table III.6 shows that personnel in the Navy have lower marriage and divorce rates than personnel in the Army, Air Force and Coast Guard, but more than higher than the rates for personnel in the Marine Corps. On the other hand, the proportion of Navy personnel in the "separated" group is the highest of all services.

Table III.6. Marital Status Information of Active Duty Military Members by Service

POPULATION	TOTAL	DoD					Coast Guard
		Total	Army	Navy	Marine Corps	Air Force	
NOT RESPONDED	5,615	5,534	1,852	1,670	762	1,251	81
RESPONDED	1,298,134	1,267,027	451,414	335,446	149,997	330,170	31,108
MARRIED (%)	59.8	59.8	62.2	57.5	47.9	64.2	61.3
SEPARATED (%)	2.6	2.6	2.8	3.0	2.2	2.1	1.9
DIVORCED (%)	6.6	6.7	6.7	5.9	4.2	8.4	5.8
WIDOWED (%)	0.1	0.1	NR	NR	NR	NR	NR

NR: Not reported; cell size less than 30
From: 1999 Active Duty Survey of Members, Defense Manpower Data Center, February 2001.

Table III.7 shows the differences in the marital status of military personnel as a whole by paygrade. Naturally, the percentage of married personnel increases over time, as well as for paygrade for both enlisted personnel and officers. The separation rates are higher in the enlisted group than in the officer group. For the divorce rates, using another

ratio such as divorced/married may be more useful to eliminate the fact that, since the number of marriages in junior ranks will be lower, then naturally the number of divorced personnel will also be lower. Although at first glance, the divorce rates seem to increase by paygrade, both for enlisted personnel and officers, when the new ratio is applied, the divorce rate for junior officers becomes higher than for the senior officers, where it does not change the initial condition for enlisted personnel.

Table III.7. Marital Status of Active-Duty Military Members by Paygrade

POPULATION	ENLISTED				WARRANT	OFFICERS	
	E1-E3	E4	E5-E6	E7-E9	W1-W5	O1-O3	O4-O6
NOT RESPONDED	1,749	1,039	1,907	587	28	174	133
RESPONDED	239,017	279,518	412,634	152,003	17,058	112,485	85,340
MARRIED (%)	26.8	45.8	72.1	83.1	85.3	63.7	87.1
SEPARATED (%)	1.3	2.8	3.8	3.0	1.4	1.2	1.2
DIVORCED (%)	1.9	4.9	9.8	10.5	8.2	4.8	5.6
WIDOWED (%)	NR	NR	NR	NR	NR	NR	NR

NR: Not reported; cell size less than 30
From: 1999 Active Duty Survey of Members, Defense Manpower Data Center, February 2001.

Table III.8 details the divorce information by each branch of service. Consistent with the information in Table III.6, military personnel in the Navy have lower divorce rates than in the Army, Air Force and Coast Guard, but higher than in the Marine Corps.

Table III.8. Number of Times Divorced of Active Duty Military Members by Service

POPULATION	TOTAL	DoD					COAST GUARD
		TOTAL	ARMY	NAVY	MARINE CORPS	AIR FORCE	
NOT APPLICABLE	400,221	390,633	126,914	112,568	68,492	82,658	9,588
NOT RESPONDED	9,082	8,771	3,129	2,353	932	2,358	311
RESPONDED	894,447	873,157	323,223	222,195	81,334	246,405	21,289
NONE (%)	72.7	72.7	71.0	74.3	78.7	71.5	74.0
1 (%)	22.6	22.5	23.6	21.2	18.8	23.6	22.7

POPULATION	TOTAL	DoD					COAST GUARD
		TOTAL	ARMY	NAVY	MARINE CORPS	AIR FORCE	
2 (%)	4.0	4.1	4.6	3.7	2.2	4.3	3.0
3 OR MORE (%)	0.7	0.7	0.8	0.8	NR	0.7	NR

NR: Not reported; cell size less than 30
From: 1999 Active Duty Survey of Members, Defense Manpower Data Center, February 2001.

Table III.9 details the divorce information for different paygrades. The percentages for divorced enlisted personnel are much higher than for officers. The percentages for divorced personnel also increase as paygrade increases.

Table III.9. Number of Times Divorced of Active Duty Military Members by Paygrade

POPULATION	ENLISTED				WARRANT	OFFICERS	
	E1-E3	E4	E5-E6	E7-E9	W1-W5	O1-O3	O4-O6
NOT APPLICABLE	167,103	129,830	58,447	5,051	812	34,014	4,962
NOT RESPONDED	3,267	1,641	2,485	742	113	394	439
RESPONDED	70,396	149,085	353,608	146,796	16,160	78,250	80,071
NONE (%)	90.0	82.2	67.8	58.7	63.9	84.3	78.1
1 (%)	9.4	16.1	26.8	31.5	28.4	13.7	18.3
2 (%)	NR	NR	4.7	8.1	5.5	1.8	3.2
3 OR MORE (%)	NR	NR	0.7	1.8	2.3	NR	0.5

NR: Not reported; cell size less than 30
From: 1999 Active Duty Survey of Members, Defense Manpower Data Center, February 2001.

Table III.10 shows the number of divorces for all military personnel by gender and duty location. It can be easily seen that female military personnel divorce more often than male personnel. However, as for the effect of duty location on divorces, it seems that overseas duties do not make any difference, which is contrary to a hypothesis in the study. In fact, the information in Table III.10 only indicates that the marital status of divorce does not make any difference in assigning personnel to overseas duty. Since information on whether the divorces occurred during the overseas duty is not available, it is not possible to assess whether the overseas duty may have played a role in the divorce.

Table III.10. Number of Times Divorced of Active Duty Military Members by Gender and Location

POPULATION	GENDER		LOCATION	
	MALE	FEMALE	50 STATES & DC	Overseas, American Samoa, Guam, US Virgin Islands, Puerto Rico
NOT APPLICABLE	330,519	69,702	326,002	72,810
NOT RESPONDED	7,661	1,421	7,856	1,216
RESPONDED	776,495	117,952	754,380	137,535
NONE (%)	74.8	59.1	72.7	73.4
1 (%)	21.2	31.7	22.5	22.6
2 (%)	3.5	7.6	4.1	3.4
3 OR MORE (%)	0.6	1.5	0.7	0.6

From: 1999 Active Duty Survey of Members, Defense Manpower Data Center, February 2001.

Table III.11 compares the divorce rates of Navy enlisted personnel and officers with all personnel in DoD between the years 1977 and 1988. Navy enlisted personnel had consistently higher divorce rates during this period than enlisted personnel in DoD as a whole. However, the divorce rates for Navy officers are not significantly different from those of officers in DoD during the same period. In addition, a significant change in all rates does not occur from 1977 to 1988.

Table III.11. Fiscal Year 1977-1988 Divorce Rates (DoD vs. Navy/Officer vs. Enlisted)

YEAR	DoD		NAVY	
	ENLISTED	OFFICER	ENLISTED	OFFICER
1977	2.5	1.4	3.1	1.1
1978	2.5	1.4	2.8	1.2
1979	2.5	1.5	2.7	1.4
1980	2.6	1.5	3.0	1.3
1981	2.8	1.6	3.5	1.6
1982	2.9	1.6	3.2	1.4
1983	2.8	1.5	3.3	1.6
1984	2.7	1.5	3.4	1.6
1985	2.8	1.5	3.6	1.6
1986	2.8	1.6	3.7	1.6

YEAR	DoD		NAVY	
	ENLISTED	OFFICER	ENLISTED	OFFICER
1987	2.6	1.4	2.9	1.3
1988	2.6	1.4	2.8	1.3

From: Wallace, Elizabeth A., Rose, Kenneth C., Divorce and Family Support Services: Problems and Prospects for the U.S. Navy, Master's Thesis, Naval Postgraduate School, Monterey, California, March 1991, p. 125.

Table III.12 shows the marital status of female Navy officers between 1990 and 1997. Although not indicated, it is assumed that divorced officers are included in the single category. One point gleaned from the table is that over 85 percent of the female Navy officers marry civilians. Another point is that the percentage of married female officers increased from 1990 to 1997.

Table III.12. Percentage of Female Officers in the Navy Who are Married, by Military or Civilian Spouse, 1990-1997

YEAR	MARITAL STATUS				
	MILITARY SPOUSE	CIVILIAN SPOUSE	TOTAL MARRIED	SINGLE	TOTAL
1990	4.3	40.1	44.4	54.5	98.9
1992	3.8	42.5	46.3	52.9	99.2
1995	6.6	44.9	51.5	48.5	100.0
1997	7.6	45.4	53.0	47.0	100.0

From: Johnson, Roni S., Civilian Husbands in the Military Family: Current Issues and Future Concerns, Master's Thesis, Naval Postgraduate School, Monterey, California, March 1998.

Table III.13 focuses on the year 1997 and includes rank information from Table III.12. For each rank, at least 82 percent of the female Navy officers prefer to marry civilians.

Table III.13. Number and Percent of Female Officers in the Navy by Marital Status, Type of Spouse (Civilian or Military) and Pay Grade, 1997

PAY GRADE	SPOUSE STATUS				SINGLE		TOTAL NUMBER
	MILITARY		CIVILIAN				
	NUMBER	PERCENT	NUMBER	PERCENT	NUMBER	PERCENT	
O-1, O-2	67	3.5	635	32.8	1,234	63.7	1,936
O-3	225	7.8	1,324	45.8	1,343	46.4	2,892
O-4	178	11.1	847	52.6	585	36.3	1,610
O-5	104	10.4	545	54.6	349	35.0	998
O-6	16	6.2	131	50.4	113	43.5	260

From: Johnson, Roni S., Civilian Husbands in the Military Family: Current Issues and Future Concerns, Master's Thesis, Naval Postgraduate School, Monterey, California, March 1998.

Table III.14 shows that the percentage of female Navy officers who married civilians did not change for O-3 to O-5 between 1990 and 1997. However, within the same period, there is an increase in the preference of female Navy officers at O-1, O-2, and O-6 to marry civilians.

Table III.14. Percent of Female Officers in the Navy with a Civilian Husband, by Pay Grade, 1990-1997

PAY GRADE	YEAR				PERCENT INCREASE (*)
	1990	1992	1995	1997	
O-1, O-2	23.9	29.8	35.1	32.8	8.9
O-3	44.0	43.6	44.3	45.8	1.8
O-4	51.1	53.6	52.3	52.6	1.5
O-5	53.0	53.9	53.2	54.6	1.6
O-6	33.9	43.4	54.7	50.4	16.5

(*) These numbers reflect the percentage increase from 1990 to 1997
From: Johnson, Roni S., Civilian Husbands in the Military Family: Current Issues and Future Concerns, Master's Thesis, Naval Postgraduate School, Monterey, California, March 1998.

D. STUDIES ABOUT THE EFFECTS OF MARITAL STATUS ON MILITARY PERSONNEL

Many studies have been conducted regarding the marital status of military personnel, with the researchers using information about marital status as the independent variable to explain the effects of marital status on different military variables such as retention, promotion, reenlistment and performance. However, in this study, for the first

time, marital status information is the dependent variable, and an attempt is made to find different variables that significantly affect the marital status of officers. No study could be found that completely covers this issue. For this reason, the focus is on previous research either directly related to the study's hypotheses, or that can help to better discern the decisions of military personnel concerning their marital status, or emphasize the importance of marital status on service members for the military.

1. Mehay and Bowman (2002)

Stephen L. Mehay and William R. Bowman analyzed the effects of marital status on both performance and promotion of Navy officers in their study. Mehay and Bowman emphasized the importance of their study by explaining why marital status is a policy issue for the military and stated:

> Marital status is a policy issue for the military because married men cost considerably more than single men. Pay for married personnel exceeds that of otherwise similar personnel due to differences in housing and subsistence allowances, and due to numerous programs (e.g., child care, housing and family support centers) that benefit primarily married households.[44]

The data used by Mehay and Bowman in their study were provided by the Navy Bureau of Personnel and the Navy Personnel Research and Development Center, which consisted of officers who began their careers in the Navy between 1977 and 1985. In the data, there were 4,283 staff and 26,385 line officers, and their marital status was recorded at three different career points: at entry, at year 3, and at year 10. The models they used were specified due to these marital status recordings. Their early career stage performance model covering years 1-3 was specified as a function of marital status at entry; the performance model for the later career stage covering years 4-10 was conditioned on marital status at year 3; and promotion at year 10 was conditioned on marital status at year 10.

Mehay and Bowman's findings in their study are: (1) male line specialists who are married at entry, have superior ratings during their first three years and are 24 percent higher than for non-married male officers; (2) prior enlisted personnel have higher

[44] Mehay, Stephen L., Bowman, William R., Marital Status and Productivity: Evidence from Personnel Data, Research, 21 December 2002, p. 2.

supervisor ratings but are not valid for the staff officers; (3) college graduates have higher supervisor ratings; (4) married staff officers receive an early-career rating premium of 14 percent; (5) African-Americans receive substantially lower performance reviews and the gap between African-Americans and whites is much larger for the staff group; (6) men in the line group who are married at year 3 receive a 6 percent advantage in ratings written during the service years 4-10, while married men in the staff group receive a 5 percent advantage; (7) divorced men in the line group receive slightly higher later career ratings, whereas the effects of divorce on the staff group was insignificant; (8) the rating advantage is twice as high for line officers who are continuously married compared to those who marry sometime between years 1 and 3, and compared to those who divorce during this period; (9) the performance advantage accruing for married men grows with marriage tenure; (10) male surface personnel who are married at entry have on-time qualification rates about 25 percent higher than single officers, and have eventual qualification rates about 20 percent higher than single men; (11) the promotion premium for married men is 13 percent higher for line officers and 8 percent higher for staff officers, and the premium rises for those who have been married longer; (12) the promotion differential is twice as great for continuously-married line officers compared to those who first marry between years 3 and 10 and more than twice as great for continuously married officers compared to those who divorce during this period; and (13) staff personnel are more likely to be promoted to O-4 than unmarried males.

Mehay and Bowman then added two-stage Heckman models or used different personnel groups in the data, in order to prevent the possible selection bias and to achieve more detailed findings. In these models, they found that for both early and later career periods, and for both skill groups (line and staff) mean supervisor scores are much higher (25-50 percent) for those who eventually choose to stay than those who leave. Another important finding is that for staff officers, the impact of marriage on promotion becomes insignificant in the selection-adjusted model. Finally, line officers who are single at entry but who will marry in the future receive higher scores in the early career period than single officers who do not marry in the future. The coefficient is insignificant for staff officers.

2. Office of the Assistant Secretary of Defense (1993)

In 1993, the Secretary of Defense directed that a study be conducted on issues associated with the first term of enlistment. The work was divided among different panels:

> One was directed to compare single with married enlistees along such factors as finances, health problems, substance abuse, pregnancy, promotion rates, and indiscipline. A second panel was directed to study existing social service programs and to assess their effectiveness in helping families adjust to the demands of military life. A third panel was directed to focus on training and deployability issues-key indicator of readiness. A fourth panel was created to focus on compensation and finance matters.
>
> The Defense Manpower Data Center (DMDC) provided data, analysis, and support to each panel…DMDC created two new data bases especially for this study, one to facilitate review of demographic data and one especially to examine issues of deployment and operating tempo. DMDC also acquired a Census Bureau database to permit comparisons with analogous civilian populations. In addition, for this study DMDC accelerated and redirected its planned analyses of returns from the large-scale survey conducted in 1992 of attitudes and experiences of almost 60,000 service members and more than 24,000 spouses. Of the respondents, 8,581 were in their first term of service.[45]

The most important findings of the study were: (1) the study group did not find any clear, statistically valid quantitative relationship, positive or negative, between marital status and readiness; (2) deployability is a key indicator of individual readiness and reflecting their diverse missions, the several services have markedly different patterns of assignment, location, and deployment; (3) the vast majority of members, regardless of marital status or dependents, deploy when ordered, but service members with dependents report more problems getting ready to deploy than do members without dependents; (4) married members tend to have slightly fewer performance and behavior problems, but problems of married members tend to be more complex and much more time-consuming for commanders, distracting those commanders from mission-oriented activities and leading to a perception that marital status has a significant impact on readiness; (5) while marriage in the first-term may pose challenges to the service

[45] Family Status and Initial term of Service, Office of the Assistant Secretary of Defense (Personnel and Readiness), Volume I, December 1993, pp. 1-2.

member, many members consider a strong marriage key to a successful long-term career in the military; and (6) many married junior enlisted members have financial problems, especially in localities with high off-base housing costs. This study group also found that finances and housing problems are at the root of many other problems which service members experience in the first term. Further, service members and families frequently lack key information about compensation, financial management, and housing. Most members and spouses who took advantage of family support programs were satisfied with the services they received. However, not all members took advantage of the programs.

3. Wallace and Rose (1991)[46]

Elizabeth A. Wallace and Kenneth C. Rose, in their joint thesis, first examined marriage and divorce rates for Navy personnel and then compared these rates with the civilian U.S. population and the military personnel from other forces. Wallace and Rose also briefly examined the counseling support services available to Navy personnel going through a divorce. Wallace and Rose used multivariate regression methods to explore the relationship between reenlistment and divorce. The data they used were taken from the 1985 DoD Survey of Officer and Enlisted Personnel. The survey was conducted by the Defense Manpower Data Center (DMDC) with the participation of 19,000 active-duty officers and 70,000 active-duty enlisted personnel.

Wallace and Rose's methodology used four logit models, where the dependent variable (INTENT) was the degree of the possibility of enlisted personnel to reenlist. The responses to the survey in grades between "probable" to "certain" were valued as 1, and responses in grades between "good possibility" to "no chance" were valued as 0. As their explanatory variables, they used personnel demographics, job factors, tenure, economic factors, personnel influences, and alternatives.

Wallace and Rose obtained important results from their models. Their reenlistment models indicate that, as a whole, 29.3 percent of the single, 53.4 percent of the married, 56.4 percent of the divorced, and 67.9 percent of the remarried personnel

46 Wallace, Elizabeth A., Rose, Kenneth C., Divorce and Family Support Services: Problems and Prospects for the U.S. Navy, Master's Thesis, Naval Postgraduate School, Monterey, California, March 1991.

intend to stay, which indicates that divorced individuals have a higher propensity to reenlist than single and married but never divorced personnel. On the other hand, as expected, the reenlistment rate for married personnel is almost twice that of single personnel. Another finding concerned being assigned to a ship. Approximately 66 percent of the personnel assigned to a ship intended to leave, and 34.5 percent intended to stay, and the population assigned to ships had a smaller percentage (11.7 percent) of divorces than the population assigned ashore (18.7 percent). These divorce rates definitely do not indicate that being assigned to ships reduces the rate of divorce, because in order to reach this conclusion, additional information is required, such as marriage rates, age, years of service onboard, at which duty (sea or shore) the divorce has taken place and so forth. On the other hand, the intention of two-thirds of the enlisted personnel that have sea duty to leave is evidence of personal problems caused by sea duty. Wallace and Rose also found that members with civilian spouses had higher reenlistment propensity than did those married to other service members.

According to their other findings, both Navy and military marriage rates as a whole are generally lower than the overall civilian marriage rates, but two to three times higher among 17-20 year olds. In addition, divorce rates are lower for military men, but much higher for military women. Finally, according to Wallace and Rose, Family Service Center services can be improved.

4. Kol and Ryu (2002)[47]

Mustafa Kol and Seung-min Ryu analyzed the effect of marital status on the job performance of U.S. Navy officers in their joint thesis. The data they used include information about U.S. Navy officers who entered the Navy between 1976 and 1985. Assuming that (1) unrestricted line officers are more likely to be separated from their family for longer periods of time due to deployments at sea, and (2) family separation will affect both the employment opportunities of officer's spouses and the couple's ability to specialize within the household, Kol and Ryu separated officers into two groups as unrestricted line officers (N=28,983), and staff and restricted line officers (N=5,357). The proxy they used to measure on-the-job productivity was the "recommendation for

[47] Ryu, Seung-min and Kol, Mustafa, An Analysis of the Relationship Between Marital Status and Family Structure and On-the-job Productivity, Master's Thesis, Naval Postgraduate School, Monterey, California, March 2002.

accelerated promotion" in the fitness reports of officers, and of course, promotion itself. These two items are the dependent variables. When they analyzed the performance models (recommendation for accelerated promotion), they used Ordinary Least Squares (OLS) models, and when they analyzed the promotion to O-4, they used maximum likelihood probit models.

Kol and Ryu analyzed the effects of basically five different issues on the officers' on-the-job performance. These are: (1) marriage premium based on "married" and "single"; (2) the effects of years of marriage on performance; (3) the effect of differences in two single officers, where the first group remains single and the second group marries in the future; (4) the number of dependents; and (5) measuring the relationship between marital status and graduate school completion.

Kol and Ryu discovered in their research that (1) married male officers receive higher supervisor evaluations (4-24 percent) and are promoted at higher rates (4-8 percent) than single male officers; (2) the more years unrestricted line male officers have been married, the higher supervisor evaluations they receive and the higher their promotion rates, on the other hand, staff and restricted line male officers receive higher supervisor evaluations when they have fewer years of marriage; (3) for both unrestricted line and staff/restricted line male officers, performance indicators increase with the number of dependents, and having more dependents increases the performance of unrestricted male officers more than that of staff/restricted line male officers; (4) for both unrestricted line and staff/restricted line male officers, single officers who will marry in the future receive more supervisor evaluations than single officers who will remain single in the future; (5) both unrestricted line and staff/restricted line male officers who are married have attained more graduate education than single officers; (6) married officers stay in the Navy in higher proportions; and (7) for unrestricted line female officers, officers who were married at entry received 15 percent more supervisor evaluations during grades O-1 and O-2 fitness reports. However, the effects of marriage on the fitness reports at grade O-3, and the promotion rate to O-4, were not significant for unrestricted female officers.

As Roni S. Johnson indicated, there is a possible relation between the marital status and performance grades of the military members, which supports the findings of Kol and Ryu. Johnson mentions in her thesis that, "Despite policy - DoD Directive 1400.33 - that specifically forbids consideration of a spouse's employment, educational, or volunteer activities in the evaluation of a service member's performance, many individuals in the military and their spouses still believe that volunteer activities are required."[48]

5. Hosek and Totten (2002)[49]

Hosek and Totten's recent study on how deployments influence reenlistment uses a PERSTEMPO data file created by the Defense Manpower Data Center (DMDC). The file contains longitudinal data on active-duty personnel by month from January 1993 through September 1999 and for the last month in each quarter going back to FY1988. Although their study was not conducted specifically for Navy deployments, it definitely provides a good indication of the effects of deployments, in general, on the retention decisions of active-military personnel.

To track the deployments, Hosek and Totten used the information of whether or not active-duty members receive FSA (Family Separation Allowance) or HFP (Hostile Fire Pay) payments. FSA is payable to members with dependents (spouses and children only) who are away on duty for a period of at least 30 consecutive days. HFP is payable to members on duty in areas or circumstances deemed hostile and is payable regardless of whether a member has dependents. By using FSA and HFB, the authors created variables for deployments, months of deployment, and whether or not a deployment involved hostile duty.

Hosek and Totten found that (1) for the first-term members, reenlistment rose with the number of non-hostile deployments and typically was little affected by the number of hostile deployments; (2) for second-term members, reenlistment rose with non-hostile and hostile deployments; (3) rather than decreasing reenlistment, deployment generally served to increase it or it was left unchanged; (4) members who were married

48 Johnson, Roni S., Civilian Husbands in the Military Family: Current Issues and Future Concerns, Master's Thesis, Naval Postgraduate School, Monterey, California, March 1998.

49 Hosek, James, and Totten, Mark, Serving Away From Home: How Deployments Influence Reenlistment, RAND Report, MR-1594-OSD, 2002, pp. 1-81.

by the time the reenlistment decision was made were more likely to reenlist and had a greater, positive effect of deployment on reenlistment than did members who were not married for both the first and second terms of reenlistment. The authors concluded that the type of member to marry also tended to like the military, deployment and would likely reenlist.

6. Hosek, Asch, Fair, Martin and Mattock (2002)[50]

In their report, James Hosek, Beth Asch, Christine C. Fair, Craig Martin and Michael Mattock analyzed the employment and earnings of the wives of the military personnel and compared it to civilian wives. In their study, they used Current Population Survey (CPS) data from the National Bureau of Economic Research (NBER).

The findings of the authors are as follows: (1) military family earnings averaged about $10,500 (in FY1999) less than the earnings of civilian families, where $5,400 of this difference comes from the difference in the wife's earnings. When comparing earnings, the age, race and education of the husband were taken into account by the authors. (2) 74 percent of military wives worked during the year compared with 82 percent of civilian wives; (3) 48% of the working military wives worked full-time versus 59 percent of civilian wives; (4) military wives worked 37.6 weeks versus 40.9 weeks for civilian wives; (5) the weekly wage of military wives who worked full-time was $268, $40 less than the weekly wage of $308 for civilian wives; (6) the difference in the frequency and length of moves accounted for a 2.7 week difference in weeks of work (less weeks for military wives); (7) the likelihood of full-time work rose more rapidly with age for military wives than for civilian wives; (8) the wage of the military wife is lower at every age than the wage of civilian wives, although the increase in wage with age is similar for military and civilian wives; (9) the presence of children is associated with the reduced labor supply for both military and civilian wives, however, the reduction is greater for military wives when the children are aged 0 to 5; and (10) the negative effect of moving on the labor supply is actually less for military wives than for civilian wives moving a similar distance, and because military wives are more likely to move longer distances. (On the last point, it should be noted that the moves by wives are more

[50] Hosek, James; Asch, Beth; Fair, Christine C.; Martin, Craig; Mattock, Michael; Married to the Military, The Employments and Earnings of Military Wives Compared with Those of Civilian Wives, RAND Report, 2002, pp. 1-85.

likely to involve a job change and a larger reduction in the labor supply. As a result, the overall effect of moving negatively affects military wives more.)

The authors associated the wage difference between military and civilian wives with the frequent movement of military families. According to authors, frequent moves might induce the wife to spend less time looking for a job and to seek jobs with short training times. In addition, employers may recognize that military wives are willing to accept jobs at lower wages rather than continue searching for a higher-paying job.

7. Ruger et al. (2002)[51]

Recent research by William Ruger et al. (2002) uses an approach that is closest to that employed in the present study. The central feature of their analysis is a statistical examination of the relationship between the military service and the duration of men's first marriages. They focused on military service during World War II (WWII), the Korean War, and the Vietnam War periods. Based on their literature review, they generated four hypotheses about the marriage duration of military members, and using survey data, they tested these hypotheses.

They used data from the National Survey of Families and Households (NSFH), which included 3,800 veterans who were interviewed first in the late 1980s and then again in the early 1990s. In this survey, among other things, veterans were asked tell about their marital history and their military service. In the second survey, ex-spouses and surviving widows were also included in the interview.

The four hypotheses that the researchers generated were: (1) military combat creates long-term psychological and emotional problems that increase the risk of marital dissolution (combat stress hypothesis); (2) time away from a spouse will weaken marriage bonds and increase the probability of dissolution (separation hypothesis); (3) marriage that occurs before the start of the husband's time of service should be associated with a higher probability of marital dissolution than marriages occurring after service commences (hasty marriage hypothesis); and (4) a returning (married) soldier comes home to a social milieu that may affect the durability of his marriage (social interaction hypothesis).

[51] Ruger, William, Wilson Sven E., Waddoups, Shawn L., Warfare and Welfare: Military Service, Combat, and Marital Dissolution, Armed Forces & Society, Vol. 29, No. 1, Fall 2002, pp. 85-107.

The dependent variable in the model was the duration of the first marriage. They used duration analysis methods (also called survival analysis or hazard models) to test their hypotheses. In this method, researchers determined a baseline "hazard function" and they converted the estimated coefficients into hazard ratios, which give the percentage difference between the baseline function and the change in the covariates.

The results they obtained are: (1) marital dissolution increased rapidly starting in the middle part of the century; (2) WWII veterans face no adverse effects from service and those who were married following the war had a significantly lower rate of dissolution than those who didn't serve; (3) veterans who married in the periods following the Korean and Vietnam wars had significantly higher dissolution rates than their nonveteran counterparts; (4) a dramatic shift occurred between WWII and Korea in the impact of service on marital dissolution: Korean war veterans have more than twice the dissolution rate of the WWII veterans; (5) combat veterans have higher hazard rates than noncombat veterans for each war; (6) marrying before or during military service increases the probability of marital dissolution; (7) education slightly lowers the hazard; and (8) relative to whites, blacks and other races have a higher hazard of dissolution, while Hispanics have a lower risk.

As previously noted, this study is the closest one to this thesis, since duration of the marriage of military members is used as the dependent variable. In addition, two of their hypotheses are directly related with the concerns of this thesis. The "separation hypothesis" and the "hasty marriage hypothesis" are similar to those in this thesis. However, there are also some major differences: (1) the study focuses only on divorces; (2) the study deals with marriages that occurred up to 60 years ago; (3) the study analyzes the effects of war, which has dramatically higher negative effects than the regular peace-time duties analyzed in the thesis; and (4) the methodology in the present study is different. Since the dependent variable in this thesis is binary outcomes—married or divorced—this thesis uses multivariate logit models to assess the effects of duties and assignments on the marital status of Navy officers.

E. HYPOTHESES ABOUT THE NEGATIVE EFFECTS OF MILITARY DUTIES AND ASSIGNMENTS ON THE MARITAL STATUS OF NAVY OFFICERS

The following hypotheses are developed about the negative effects of military duties and assignments on the marital status of Navy officers, based on the literature review and personal experiences: (1) married officers who are on sea duty are more likely to divorce; (2) officers who marry in the early years of military service are more likely to divorce; (3) sea duty in the early years of military service causes later marriage among single officers; (4) riskier and more arduous duty has a negative effect on officers and causes a higher rate of divorces than do other types of duty; (5) duty overseas will tend to delay marriage for a single officer while increasing the likelihood of divorce for those who are married. These hypotheses are discussed below.

1. Married Officers Who Are on Sea Duty Are More Likely to Divorce

There are two potential negative effects of "sea duty" on divorce. The first effect arises from the relatively harder working conditions and additional stress caused by duties on war ships compared to office work. The second arises from deployments, which cause separations from family members for long periods of time, such as generally five to six months. The negative effects of the stress caused by sea duty are explained in hypothesis four below. This section focuses on the negative effects of deployments.

The negative effects of deployments influence officers and their families differently. In addition, the gender of the officer, and the presence of children are other factors that cause differences in the severity of the effect of sea duty on the officers and their families.

According to a report published by the Office of the Assistant Secretary of Defense in 1993, two-thirds of service members with dependents who had deployments reported major problems related with the deployments, while only one-third of single service members likewise reported problems.[52] This supports the hypothesis that the combination of difficult working conditions and having dependents may increase a member's problems dramatically.

[52] Office of the Assistant Secretary of Defense, Family Status and Initial Term of Service, December 1993, Vol-I, p. 7.

For officers who deploy, the main problem caused by sea duty is being away from family and home. Another source of stress is the monotony of a long deployment. The feeling of accomplishment of doing their job onboard, being with their colleagues all the time, having port visits, and recreational and morale activities organized onboard reduce the stress to some extent. However, these activities cannot overcome the feeling of worrying about their family. Deployments create uncertainty for both the military service member and the spouse about each other's safety, which induces stress and anxiety. The level at which a spouse and children can communicate with the service member determines the intensity of this anxiety. Nevertheless, in spite of technological developments, tactical or environmental constraints, such as the deep-diving cruise of submarines, family members are not allowed to communicate with a service member whenever they want. Michelle L. Kelley, citing Glisson (1980) and Beckman (1979), states in her study, "Among submariners' wives, the highest level of depressive effect was reported when ships were submerged and all communication ceased," and "clinical levels of depressive behavior have been found in wives of nuclear submariners."[53]

Deployed male officers who have children are apparently not affected negatively from being away from their families as much as their female counterparts, since they tend to think that their children are under good care. Kelley mentions in her study that one-half of children of enlisted U.S. Navy mothers live with someone other than their father during their mother's deployment.[54] For female officers, being anxious about a dependent can reduce their ability to concentrate on the job, which is another negative issue for the Navy.

The negative effects of a deployment on female military members are analyzed in detail in Kelley's study. In her study, she surveyed 154 enlisted Navy mothers forming one deployment group (N=71) and one non-deploying group (N=83). According to her results, 87 percent of women who experienced deployment reported that they felt guilty about leaving a child to go on deployment.[55] Thirty-eight percent stated that deployment

[53] Kelley, L. Michelle, "The Effects of Deployment on Traditional and Nontraditional Military Families: Navy Mothers and Their Children" in Morten G. Ender, editor, Military Brats and Other Global Nomads-Growing up in Organization Families, Praeger Publishers, 2002, pp. 4 and 5.

[54] Ibid., p. 17.

[55] Ibid., p. 14.

was stressful for family members, 25 percent stated that their children had difficulty emotionally, 24 percent reported that they had mother-child attachment difficulties, and 22 percent stated that their children exhibited negative behavior. On the other hand, 16 percent stated that deployment had a positive effect on their children, 16 percent stated that deployment had a positive effect on the family, and 15 percent reported that deployment had no effect.

The negative effects of deployments on the dependents of deployed military members are relatively greater than on the members themselves. Kelley summarizes the negative effects of the deployments on families, as seen in Table III.15.

Table III.15. The Negative Effects (Sources of Stress) of Deployments on Dependents of Military Members

PHASE OF DEPLOYMENT	COMMON SOURCES OF SPOUSE STRESS AND AFFECTIVE DIFFICULTIES
Predeployment	Marital stress/conflict, distancing from spouse, anger, resentment, sadness/depression, negative child behavior
Deployment	Marital problems, isolation, loneliness, anger, resentment, sadness/depression, reduced communication, stress, less social support, assuming the role of single parent, child care difficulties, sleep disturbances, physical symptoms, home and car repairs, difficulty assessing military services, negative child behavior
Postdeployment/Reunion	Redefining responsibilities, marital stress, communication problems, anxiety, anger, resentment, parent-child attachment issues

From: Kelley, L. Michelle, "The Effects of Deployment on Traditional and Nontraditional Military Families: Navy Mothers and Their Children", p. 5.

Kelley, citing Armfield (1993) and Holland (1997), states:

> Families have different abilities to cope with deployment stress. Military wives with deployed husbands who exhibited secure attachment reported fewer separation concerns and emotional distress than women with insecure attachment.[56]

Suzanne Wood, Jacquelyn Scarville and Katharine S. Gravino write:[57]

> For all (the spouses whose husbands are in deployment), there were changes in household routines, roles, and responsibilities. Some women

[56] Kelley, Michelle L., "The Effects of Deployment on Traditional and Nontraditional Military Families: Navy Mothers and Their Children", p. 6.

[57] Wood, Suzanne, Scarville, Jacquelyn, Gravino, Katharine S., Waiting Wives: Separation and Reunion among Army Wives, Armed Forces & Society, Vol. 21, No. 2, Winter 1995, pp. 217-236.

> experienced severe problems: overwhelming depression and loneliness, loss of a job, financial crises, falling out by nearby relatives or neighbors, or illness. (Two of the 11 pregnant wives in the sample miscarried during the weeks around departure.) For most of the women in the sample, life began to stabilize as they determined their new roles as "waiting wives."[58]

Members who seemed to adjust more quickly were those who stayed busy and involved in a variety of ways: such as work, community activities, the family, church, family support groups, and a combination of these.

According to Wood et al., the problems within military families do not end when the husband (member) returns. After the first days of physical closeness, when there was an initial tendency to do everything together,

> …differences became apparent. Many men had unrealistically expected that things would remain the same at home. Some women were hurt by their husbands' seeming indifference to their accomplishments and changes of the past six months. Men, eager to resume roles in the family, were surprised and often overwhelmed by their wives' ability to get along without them.[59]

According to Mady Wechsler Segal, family members informally carry the rank of the service member[60]. In times of deployments, the officers' wives are expected to organize some family support activities such as gatherings, telephone trees to relay information, which add more duties and responsibilities for them. In most of the cases, the stress and the problems caused by the deployments diminish with each subsequent deployment, but they never disappear entirely for the families.

Johnson emphasizes another problem for the spouses caused by deployments. She studies the advantages and disadvantages of civilian spouses for female officers in her master's thesis[61]. She points out that, in 1997, 46.7 percent of female officers were single, 18.4 percent of female officers were married to military service members, and 34.8 percent of female officers were married to civilians. According to her, a civilian

58 Ibid., p. 223.

59 Wood, Suzanne, Scarville, Jacquelyn, Gravino, Katharine S., Waiting Wives: Separation and Reunion among Army Wives, Armed Forces & Society, Vol. 21, No. 2, Winter 1995, p. 226.

60 Segal, Mady Wechsler, The Military and the Family as Greedy Institutions, Armed Forces & Society, Fall 1986, Vol. 13, No. 1, p. 22.

61 Johnson, Roni S., Civilian Husbands in the Military Family: Current Issues and Future Concerns, Master's Thesis, Naval Postgraduate School, Monterey, California, March 1998.

spouse, in addition to other problems that all spouses encounter, "may also suffer some degree of jealousy or mistrust of either his military wife, or her male coworkers, during periods of separation or deployment, depending on his maturity and level of mutual trust in the marriage."[62]

The findings of a study by Firestone and Harris in 1994 support the civilian husbands' concerns. In their study, out of the 9,497 female military service members (from the Army, Navy, Air Force, Marine and Coast Guard), 64.4 percent of female officers and 74.8 percent of female enlisted personnel stated that they were exposed to sexual harassment at least once.[63]

The negative effects of deployments are not only limited to the single deployment cycle. Some important events occurred during deployment, such as births, deaths, the first steps of a child, and many others. When the deployed officers cannot share in these events, permanent problems may occur with family bonds. The long-term effects of deployments are as important as the short-term effects.

The problems caused by deployments are added to the other job-related problems that all officers face and increase the possibility of divorce. In addition, most of the spouses who do not have enough courage to initiate divorce can test themselves during the deployments about whether they can manage to live on their own or not, and this may make the decision concerning divorce a little easier for them than for their civilian counterparts.

2. Officers Who Marry in the Early Years of Military Service Are More Likely to Divorce

In a study by Becker, two reasons are identified for early marriages.[64] First, a person is so very lucky to find the best spouse and they marry immediately; or, second, a person is very pessimistic and believes that it will be impossible to find a better spouse in the future. In the second case, long-term deployments and consecutive assignments may

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62 Ibid., p. 28.

63 Firestone, Juanita M., and Harris, Richard J., Sexual Harassment in the U.S. Military: Individualized and Environmental Contexts, Armed Forces & Society, Vol. 21, No. 1, Fall 1994, p.36.

64 Becker, Gary S., A Theory of Marriage: Part I, Journal of Political Economy, Volume 81, Number 4, July/August 1973, pp. 813-846; Part II, Journal of Political Economy, Volume 82, Number 2, March/April 1974, pp. S11-S26.

make officers feel pessimistic and cause them to marry without being sure if this is the "right" person.

Wallace and Rose offer another opinion about why an early marriage may occur in the military.[65] In their thesis, they basically studied the marriage and divorce patterns of junior enlisted personnel and analyzed family support services. According to the authors, marriages also bring some extra benefits for the couples. They state:

> …perhaps the sub-population entering the military is strongly influenced by the immediate benefits gained from the marriage. Individuals with a present-oriented attitude may be less likely to put forth much time in the search for the best spouse and may generally make more wrong choices.[66]

Wallace and Rose also point out "early marriages and parenthood rates lead to unstable marriages and divorces, which inhibit readiness. It is a counterproductive system."[67] For all cases, besides all the benefits, it is obvious that officers who marry in the early years of military service may encounter additional work-related problems affecting their marriage that other officers do not encounter.

The working environment is generally harder for young officers due to being relatively inexperienced in solving routine problems, having personal difficulties with other officers caused by being a junior officer, having additional administrative duties, mostly assigned by the executive officer, and heavier assignment in lower-level, routine duties. According to regulations, young officers have to fulfill required training in the early years of service and, as mentioned in section B, 2, b, they also fulfill the sea-duty requirements due to their branch of service, which makes it virtually impossible for them to have control over their assignments. For this reason, when compared to an officer who gets married in the higher ranks (O-3 or O-4), an officer who gets married in the junior ranks likely encounters relatively more job-related problems.

In the hierarchical composition of the military, the closest friends of officers and their wives are naturally their workmates and their wives, or other officers who are close

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65 Wallace, Elizabeth A., Rose, Kenneth C., Divorce and Family Support Services: Problems and Prospects for the U.S. Navy, Master's Thesis, Naval Postgraduate School, Monterey, California, March 1991.

66 Ibid., p. 21.

67 Ibid., p. 22.

to them in rank. Since officers marry over a long career period, in the early years of military service, the percentage of married officers from the same group is often very low. This will cause early-married officer families to have fewer friends than the families who married later. This will cause loneliness for these families, which is very important, especially when the officers are deployed. Another issue is that, when officers get married, they have to share less time even with their best "single" friends. Their friendships will surely not end, but it is obvious that two best friends cannot spend as much time together as they spent before one of them gets married. For the so-called "trailing spouse," friendship is a greater problem because their marriage causes them to leave their family, relatives, and friends, and start a new life in a new location, which puts them, and their marriages, in a very vulnerable position.

In addition to having fewer friends, research shows that a number of these families are not aware of support available in hard times through the military's family support programs. For example, according to a RAND research paper:

> Inequities exist both in [family support] program use and in location. The use of the programs varies widely. Some, such as the housing office, get heavy use with a third of the military members visiting it within the first two years at a location. Others, such as stress management and effective parenting, serve less than 4 percent of the population during the first two years.[68]

Another RAND report observes the following:

> The well-being data indicate that most military members are satisfied with their service life, but satisfaction varies according to demographics, service, and rank. For example, married service members accompanied by their spouses are the most satisfied, and older members show slightly more satisfaction than do younger ones.[69]

The combination of these findings means that, although younger military service members are less satisfied with their jobs, they do not use the quality of life programs provided for them effectively. This is yet another reason why "early-married" families may be more likely to divorce.

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[68] Quality of Life Programs, RAND Defense Issues, 1997, p. 3.

[69] Assessing Quality of Life Programs, RAND Defense Issues, 1998, p. 2.

For early-married dual military couples, the job-related problems again make life harder. As mentioned in section B, the Navy's assignment policy supports the collocation of Navy members married to other military members, and it is noted that every reasonable effort would be made to allow military couples to move together and/or serve together whenever possible. However, most of the relocating programs do not include officers who are in pay grades O-1 or O-2. As Johnson writes:

> As of September 1997, only 47 percent of junior (female) officers (pay grade O-1 to O-3) are married; however, 40 percent have a civilian spouse, while 7 percent are married to military personnel. This large disparity probably reflects the difficulty of assigning both a husband and a wife, at least one of which is a junior officer, to the same location during the early stage of their career.[70]

From the spouses' point of view, early marriages, whether or not with an officer, also cause some additional problems. Assuming that the typical spouse is the same age as or younger than the officer (at the pay grade of O-1 or O-2), he or she may not be able to finish college or may not have much job experience in a job area. This situation affects the spouse very much, because consecutive assignments will cause the couple to move to different locations, and reduce the possibility that the spouse will find a good job and accrue seniority or experience. This not only affects the family financially, but also prevents the spouse from staying busy and being less stressed when the officer deploys.

Other problems are related to the age of the spouse and his or her experience. Kelley refers to Holland's findings (1997) that "older wives with deployed husbands who had been married and in the military system for over 10 years tended to exhibit lower levels of separation anxiety".[71] Wallace and Rose also mention that the family's experience with deployments, exercises and recent conflicts can actually be important in maintaining family stability. Although all families are very sensitive to such difficulties and stress, the ones who have more life experiences may be more likely to solve them.

Obviously, early marriages do not always end in divorce. The choice of an appropriate spouse is the key factor for healthy, early marriages. On the other hand, job-

[70] Johnson, Roni S., Civilian Husbands in the Military Family: Current Issues and Future Concerns, Master's Thesis, Naval Postgraduate School, Monterey, California, March 1998, p. 12.

[71] Kelley, Michelle L., "The Effects of Deployment on Traditional and Nontraditional Military Families: Navy Mothers and Their Children", p. 9.

related problems caused by the rank and experiences of the officer and the problems caused by the age and the life-experience of spouses, make early marriages more susceptible to dissolution.

3. Sea Duty in the Early Years of Military Service Cause Later Marriage Among Single Officers

Since most of the officer candidates are not allowed to marry before being commissioned (see eligibility requirements for U.S. Naval Academy[72]), most officers get married only after being commissioned. Assignment to a new location after being commissioned makes it difficult for an officer to continue previous friendships and also make new friends. The officer's success in continuing friendships or making new friends is directly proportional to the time he or she can spare for "leisure." Sea duties, and especially five- or six-month long deployments, can reduce this personal time.

According to Johnson, in fiscal year 1997, 53.3 percent of female Navy officers were married, and 65 percent of these officers had a civilian husband.[73] One of the important findings of the study is that the marital status of female Navy officers is very dependent on their branch. For example, in 1997, 28.7 percent of female surface warfare officers and 33.5 percent of the female aviators were married. At the same time, 63.6 percent of the female public information officers were married. According to Johnson:

> Two reasons women aviators and surface warfare officers are more likely to be single are the frequency of the deployments and arduous work schedule in these specific communities, which exact a high toll by limiting the available time for interpersonal relationships. It is also likely that a civilian spouse would understand the need for the frequent training assignments, pre-deployment work-ups and deployments that inevitably take the service member away from the spouse and/or family for many months at a time. This environment may explain why the number of military spouses outnumbers civilian spouses in these specific communities. Twenty-one percent of aviators and nearly 16 percent of surface warriors are married to military husbands, as compared with 12.5 percent who are married to civilian husbands.[74]

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72 http://www.usna.edu/Admissions/steps2.htm.

73 Johnson, Roni S., Civilian Husbands in the Military Family: Current Issues and Future Concerns, Master's Thesis, Naval Postgraduate School, Monterey, California, March 1998, p. 16.

74 Ibid., p. 17.

Although Johnson's findings were limited to female officers, this study offers a very good example of how difficult it is for officers who deploy to marry.

4. Riskier and More Arduous Duty Has a Negative Effect on Officers and Causes a Higher Rate of Divorce Than Do Other Types of Duty

In a recent article, published in Armed Forces & Society, the authors state, "…employees who experience a moderate degree of job stress perform their jobs most efficiently, while those who experience either low or high work-related stress show reduced work efficiency."[75] The high job-related stress that military combat personnel encounter not only affects their work efficiency, but also their family lives, because, as Wallace and Rose mention, "when service members marry, their families are also affected by some of the unique characteristics of military life, geographic mobility (including overseas residency), the risk of injury or death of the service member, periodic separations, and normative pressures regarding their roles in the military community."[76]

Muchinsky mentions three different models that researchers use to explain the relationship between work and family in his book, Psychology Applied to Work:

> Spillover model asserts that there is similarity between what occurs in the work environment and what occurs in the family environment. It also proposes that a person's work experiences influence what he or she does away from work. It is assumed that attitudes at work become ingrained and carried over into home life, affecting a basic orientation toward the self and family members. In general, spillover is a notion of positive relationships between work and family variables such that an individual's satisfaction with work enhances family life. The compensation model is most often contrasted with the spillover model. It proposes an inverse relationship between work and family…deprivations experienced in work are made up or compensated for in nonwork activities. The segmentation model proposes that the work and nonwork spheres are distinct so that an individual can be successful in one without any influence on the other.[77]

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[75] Bray, Robert M, Camlin, Carol S., Fairbank, John A., Duntelman, George H., Wheeles, Sara C., The Effects of Stress on Job Functioning of Military Men and Women, Armed Forces & Society, Vol. 27, No. 3, Spring 2001, p. 398.

[76] Wallace, Elizabeth A., Rose, Kenneth C., Divorce and Family Support Services: Problems and Prospects for the U.S. Navy, Master's Thesis, Naval Postgraduate School, Monterey, California, March 1991, p. 26.

[77] Muchinsky, Paul M., Psychology Applied to Work, 2000, p. 316.

As Muchinsky states, "A common finding is that aspects of work, such as job stress and work schedules, have negative effects on families."[78] According to Muchinsky, social support reduces the relationship between various job stressors and indicators of mental and physical health, such as anxiety, depression and irritation. Muchinsky, citing Sutton and Kahn (1987), mentions that, besides social support, there are three other situational variables that serve as potential buffers against stress: "(1) the extent to which the onset of a stressor is predictable, (2) the extent to which it is understandable, and (3) the extent to which aspects of the stressor are controllable by the person who must experience it."[79] However, in the case of military combat personnel, the precautions these personnel can take against job-related stress are very limited.

The risk of injury or death is incomparably higher in wartime for military personnel, but exercises and training increase injury and the risk of death for military personnel in combat groups even in peacetime, as the training and exercise are always tied to simulating real wars. The various syndromes combat groups may encounter in wartime are listed as follows by a Military Psychiatry source: "organic mental syndromes, mood and anxiety disorders (major depression, bipolar disease, phobic disorders, generalized anxiety disorder, panic disorder), adjustment disorder, dissociative disorders."[80] Aspects of these syndromes are also possible for military personnel in combat groups and their dependents during peacetime.

Mady Wechsler Segal shares the same view concerning the risk of injury for military personnel. According to Segal, the family and the military are two "greedy" institutions.[81] As Segal writes:

> The risk that military personnel will be wounded or killed in the course of their duties is an obvious aspect of the institution's demands. The legitimacy for the institution to place its members at such physical risk is perhaps the greediest aspect of all. While this risk is, of course, greatest in wartime, even peacetime military training maneuvers entail some risk of

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78 Ibid, p. 315.

79 Ibid, p. 313.

80 http://cim.usuhs.mil/ps02001/01.HBC.WWW.7.43.Mil-Psy.LS.pdf.

81 Segal, Mady Wechsler, The Military and the Family as Greedy Institutions, Armed Forces & Society, Vol. 13, No. 1, Fall 1986, p. 9.

> injury, and military personnel can be sent any moment to areas of armed conflict.[82]

The permanent, and occasionally increasing, stress in the work environment surely affects the social lives of the military personnel. In a 1999 RAND report, Van Laar observes:

> …military personnel in combat units face the possibility of involvement in dangerous activities, often at short notice. These stressors are likely to increase the difficulty of maintaining close social connections with others.[83]

Although this stress is directly related to the level of risk encountered, and the ability of the individual to overcome the stress, it is fair to assume that officers who work in riskier and more arduous duties are likely to have more interpersonal problems then these who do not. These interpersonal problems are also more likely to service in the officers' marriages

Research suggests that job-related stress affects female and male military personnel differently. Muchinsky, citing Frankenhaeuser (1988), writes that "the characteristic elevation of catecholamine levels as the stresses of the workday accumulate are sharply reduced at the end of the workday for men, but for married, employed women, the elevation persists until the household responsibilities are also fulfilled."[84]

In another study, Bray et al. administered a survey to 16,193 military members, 3,662 of them officers, to analyze the effects of work-related stress, family-related stress, financial stress, and health-related stress on job functioning. The correlations between each factor were measured as .84, .65, .50 and .20, respectively, for work-related stress, health-related stress, family-related stress, and financial-related stress. According to their findings,

> About 40 percent of both women and men perceived a great deal or a fairly large amount of work-related stress. In contrast, women perceived more family stress than did men. About 29 percent of women perceived a great deal or a fairly large amount of family stress versus about 22 percent

[82] Ibid, p. 16.

[83] Van Laar, Colette, Increasing a Sense of Community in the Military: The Role of Personnel Support Programs, RAND Corporation, 1999, pp. 1-2.

[84] Muchinsky, Paul M., Psychology Applied to Work, 2000, p .312.

> for men. An estimated 33 percent of the women reported a great deal or a fairly large amount of stress due to a being a woman in the military…. Descriptive analyses indicated that from 22 percent to 40 percent of military men and women experienced high levels of stress in their work or family and personnel relationships. Overall, both military men and women were nearly twice as likely to report feeling high levels of stress in their military work (39 percent) then in their family life (22 percent). For both men and women, nearly 4 out of 10 perceived a great deal or a fairly large amount of work-related stress. In contrast, women perceived more family-related stress than did men.[85]

Another important finding by Bray et al. is that the drug and alcohol usage in groups exposed to stress increases remarkably, statistically significant for men, but not significant for women, which is very dangerous for family relationships.

Although the report by Bray et al. does not directly study the effects of job-related stress on family relations, some conclusions can be derived from its findings. Since the study does not differentiate the occupations in the military, military personnel are analyzed as a whole. The finding that only some of the personnel feel work-related stress is consistent with the idea that some occupations are riskier, more arduous, and more stressful than others. Another finding, that the ratios of work-related and family-related stresses are different, can be interpreted to mean that not all work-related stresses affect family life. In addition, it may also mean that family support programs are successful to some extent. Another reason for this difference can be that the participants in the survey may simply not want to admit their family problems.

In sum, certain occupations, especially combat duties, in the military are riskier and more arduous than others both during wartime and peacetime. Stress caused by the risk of serious injury or death likely affects the family relationships of military members negatively and increases the possibility of divorce.

5. Duty Overseas Will Tend to Delay Marriage for a Single Officer and Increase the Likelihood of Divorce for a Married Officer

In part B, the subject of overseas duty for military service members is described in detail. Both single and married military service members may have overseas duty if they satisfy the eligibility requirements. Overseas duty affects single military service

[85] Bray, Robert M, Camlin, Carol S., Fairbank, John A., Duntelman, George H., Wheeles, Sara C, The Effects of Stress on Job Functioning of Military Men and Women, Armed Forces & Society, Vol. 27, No. 3, Spring 2001, p. 405.

members similarly when deployed, as mentioned in part C, section 3. Overseas duty significantly impedes service members from continuing their previous friendships and making new friends. The effects of overseas duty are more severe than regular deployments, because deployments typically last five or six months. On the other hand, most foreign duty assignments for single members last 24 months.

Although consecutive assignments to different locations are very natural in military life, and both the military members and their dependents are carefully screened for overseas duty, the problems caused by overseas duty for military families are relatively greater than a regular relocation in CONUS. As Muchinsky, citing Arthur and Bennett (1995) writes:

> Family support is the most critical factor in accounting for successful international assignments. The results suggest the advisability of including one's spouse and other family members in cross-cultural training and, if feasible, sending them overseas to preview their new environment.[86]

Ronen identified four abilities considered critical for successful overseas assignments: tolerance for ambiguity, behavioral flexibility, non-judgmentalism, and cultural empathy, which indicates that foreign duties cause problems even for civilians. As Ronen adds, intensive support is often needed to overcome related problems.

According to Segal:

> Periodic foreign assignments bring to the military family both benefits and hardships. All the relocation adjustments are experienced in extreme form. While they vary according to how different the host culture is from American society, even in those to the most similar to the United States (industrialized Western democracies) the initial reaction is often one of "culture shock.". Behavioral norms differ on matters both serious and mundane, and language barriers can lead to feelings of isolation and even fear. While most families eventually cope with living abroad, and many thoroughly enjoy the experience, some encounter severe difficulties.[87]

As mentioned previously, according to Wallace and Rose, "when service members marry, their families are also affected by some of the unique characteristics of

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[86] Muchinsky, Paul M., Psychology Applied to Work, 2000, p. 319.

[87] Segal, Mady Wechsler, The Military and the Family as Greedy Institutions, Armed Forces & Society, Vol. 13, No. 1, Fall 1986, p. 21.

military life: geographic mobility (including overseas residency), the risk of injury or death of the service member, periodic separations, and normative pressures regarding their roles in the military community."[88] For them,

> The increased geographic mobility of military families relative to civilians may indicate a higher propensity for divorce among military families for several reasons. While some in the military consider the opportunity to travel a benefit, most experience it as hardship. The hardships of frequent moves include the general adjustments made by any family; establishment of a new social support system, finding one's way around a new town (or country), and adjustment to regional dialects or cultural differences. The difficulties children experience in adjusting to a new location can vary, depending upon their ages. School-age children and teenagers are particularly vulnerable; lack of standardized curricula across the nation may cause gaps or repetition in education, and the disruption of peer relationships may be particularly stressful during adolescence.[89]

Although Wallace and Rose focus on regular relocation assignments, the problems they mention also cover some of the problems of foreign duty. However, families, and especially the spouses during foreign duties, need more support.

Van Laar explains the additional support requirements in her study. According to Van Laar:

> The concerns for military service members living abroad closely resemble those for individuals living in isolated communities. Because the civilian community is likely to differ somewhat from the community with which most of the service members are familiar, the personnel support programs will have more responsibility for creating a community than the programs would have in a comparable location in the CONUS. Again, this means that personnel support programs should develop different kinds of programs to satisfy the heterogeneity of service members and their families. At the same time, the unique position of bases on foreign territory leads to a concern with the attitudes individuals on-base form towards nationals of the host country and of the attitudes that the host nation forms of U.S. citizens through its contact with service members and their families. Thus, an important role for the personnel support programs

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[88] Wallace, Elizabeth A., Rose, Kenneth C., Divorce and Family Support Services: Problems and Prospects for the U.S. Navy, Master's Thesis, Naval Postgraduate School, Monterey, California, March 1991, pp. 26-27.

[89] Ibid, pp. 27-28.

> will involve the maintenance of partnerships between the military and local citizens.[90]

Another important issue, according to Van Laar, is that,

> Spouses low in community identity are four times as likely to return to the United States from their station abroad than spouses who are high in community identity. In turn, spouse and family problems have been related to problems of the military service member.[91]

This suggests that family members, and especially spouses, should be trained and counseled before the foreign duty.

The unacquainted life-style, cultural differences, language and communication problems, loneliness due to isolation from friends and relatives, school adaptation problems by children, spouse career problems, and so forth, likely cause increased stress among military members and their families who are on foreign duty. This stress, in turn, can create an increased risk of divorce.

F. CHAPTER SUMMARY

This chapter consists of four parts. In the first part, the reasons behind the marriage and divorce decisions of individuals are examined using theories of various researchers. The second part looks at the marital status trends of both the U.S. population and military personnel. The third section reviews previous studies regarding the marriage-related decisions of military personnel and the relationship between marital status and individual behavior or performance. In the last part, five hypotheses are offered, based on the literature review about the effects of military duties and assignments on marital status. These five hypotheses form the central focus of the study.

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[90] Van Laar, Colette, Increasing a Sense of Community in the Military: The Role of Personnel Support Programs, RAND Corporation, 1999, p. 38.

[91] Ibid, p. 11.

IV. DATA AND METHODOLOGY

A. DATA AND DESCRIPTIVE STATISTICS

The data for this study contain information about U.S. Navy officers who were commissioned in 1990. The data were obtained from the Defense Manpower Data Center (DMDC). Although the DMDC data included different officer cohorts from 1981 to 1999, only those in the 1990 cohort were selected for this study. The reason for foc using on 1990 is twofold: this year is the most recent point at which career milestones can be studied, generally at least ten or twelve years after commissioning. The 1990 cohort data are also useful because they reflect marital status trends in the 1990s. In addition, the 1990 Navy officer cohort data allow an analysis of officer performance and marital status using promotion to O-4.

Based on the literature review, many variables have been generated to test the effects of Navy duties and assignments on the marital status of Navy officers. Table IV.1 shows the variables that are used in the regression models in this study.

Table IV.1. Variable Descriptions

Variable Name	Variable Description
MARRIED	= 1 if officer remained married during the military service
DIVORCED	= 1 if officer has divorced during the military service
SEA	= Number of years at sea duty
SEAGONE	= 1 if officer has ever had a sea duty
FOREIGN	= 1 if officer had a duty in a foreign country
FEMALE	= 1 if officer is female
BLACK	= 1 if officer is black
OTHER	= 1 if officer is neither black nor white
AGE1	= 1 if entry age is less than 22
PRIOR	= 1 if officer is prior enlisted
PG	= 1 if highest education year is higher than education at year of commissioning
MILSPOUSE	= 1 if officer has a has a spouse in military service
TOPSECRET	= 1 if officer has a security classification of topsecret
SWO	= 1 if officer is a surface warfare officer
SEAL	= 1 if officer is a seal
SUB	= 1 if officer is a submariner
DIVER	= 1 if officer is a diver
PILOT	= 1 if officer is a pilot

Variable Name	Variable Description
SURGEON	= 1 if officer is a surgeon
EMERGENCY	= 1 if officer is a nurse who is in charge with emergency care
LEGISLATIVE	= 1 if officer has a legislative duty
INTELLIGENCE	= 1 if officer has an intelligence duty
PERSONNEL	= 1 if officer is a recruiter or a distribution officer
NUCLEARENG	= 1 if officer is in charge with the nuclear reactors onboard
NROTCSCHOLAR	= 1 if officer is nrotc graduate with scholarship
NROTCNONSCHOLAR	= 1 if officer is nrotc graduate with no scholarship
OCS	= 1 if officer is ocs graduate
DIRAPP	= 1 if officer became an officer via direct appointment
AVIPROG	= 1 if officer had aviation training program
EARLYPRO	= 1 if officer who was O1 at commissioning becomes O4 in 10 YOS or earlier
O1	= 1 if officer has married at rank of O1
O2	= 1 if officer has married at rank of O2
O3	= 1 if officer has married at rank of O3
O4	= 1 if officer has married at rank of O4
O5	= 1 if officer has married at rank of O5
O6	= 1 if officer has married at rank of O6
DIVDEPEND	= 1 if officer has more than one dependent

Note: Variables are generated based on the literature review and the availability of data.

The U.S. Navy officer cohort data originally consisted of 6,818 observations. However, some of these observations are excluded due to erroneous or missing/unknown data. Out of the 6,818 observations, 455 are warrant officers. Since warrant officers do not have the same characteristics as commissioned officers (because of differences in age, year of service, duty types, and, most importantly, marital status at entry), warrant officers were excluded from the analysis. Another restriction resulted from the missing data on race. Since race is an important demographic attribute, 109 observations with "unknown" information on race were excluded from the sample. Further, 126 officers were excluded because of missing data for an entire year within their careers. Finally, although DMDC data consisted of yearly information for only single and married officers, in all years except 1991 and 1992, marital status information was coded differently. Consequently, 285 officers with unidentified marital status were excluded from the data. Since some of these excluded officers had more than one of these data problems (72 in all), the total number of excluded observations is 903. The remaining observations used in the study totaled 5,915.

DMDC data used in this thesis contain yearly marital status information on Navy officers from 1990 to 2001. This yearly information allows the tracking of the changes in marital status during each person's career. Since DMDC data do not include information on cohabitation, separation, or being widowed, only three basic categories of marital status were used: married, single, and divorced. It should be emphasized that must be underlined is that the officers are only tracked and analyzed during their military career. Changes in marital status changes after the completion of military service are not analyzed. For example, although a divorce may occur just one year after leaving the military, and be influenced by the officer's military service, such cases are beyond the scope of the thesis.

One of the important issues about marital status is the effect of time. It is very likely that, in the first years of service, the percentage of single officers is relatively higher than the percentage later in one's career. This factor is examined by looking at the marital status of officers at different career points.

Table IV.2 shows marital status information on Navy officers at different points. Since all of the officers did not stay in the Navy throughout the years 1990 and 2001, the number of officers (observations) who were on duty at each point is indicated in the table. The first column shows the marital status of officers between the entire 1990-2001 period. Within this period, 63.6 percent of officers were married and did not divorce during their career, 5.5 percent of them divorced at least once, and 30.9 percent never married. The second column shows marital status for the first five years. The third column covers the same period, but, in this column, officers who left the Navy within the first five years of military service are excluded. The fourth column contains information on the marital status of officers between 1995 and 2001.

Table IV.2. Marital Status of Navy Officers Commissioned in 1990, Selected Periods, 1990-2001

STATUS	1990-2001 (TOTAL)[a]		1990-1994[b]		1990-1994[c]		1995-2001[d]	
	#	%	#	%	#	%	#	%
SINGLE	1,826	30.9	2,474	41.8	1,665	37.5	780	20.0
MARRIED	3,764	63.6	3,290[e]	55.5	2,644[f]	59.5	2,940	75.4
DIVORCED	325	5.5	151	2.6	134	3.0	179	4.6
TOTAL	**5,915**	100.0	**5,915**	100.0	**4,446**	100.0	**3,899**	100.0

Notes: a: All officers are included, no period separation.
b: All officers are included, only marital status and duties in the first five years are included.
c: Officers who attritted within the first years of service are excluded.
d: Officers who were still in the military at the end of 5 years of service are included.
e: Both officers who were married at entry and officers who married within first five years of service are included.
f: Only officers who married within first five years of service are included.
Source: Derived from DMDC, 1990 Navy Officer Cohort Data File.

Table IV.3 shows descriptive statistics about the variables at different points for both male and female officers. Only the variable "sea" is measured in years, and the rest of the variables are displayed in percentages. Table IV.3 shows that almost 75 percent of officers have never experienced sea duty, and 80 percent have never had foreign duty. In terms of demographics, 88 percent of the officers are white. Officers are from different commissioning sources, and only 15 percent of them are Naval Academy graduates. Approximately 65 percent of officers have duties listed in the table, and the rest have relatively less risky and arduous duties. Half of all officers are submariners, surface warfare officers, or pilots.

Table IV.3. Descriptive Statistics For Navy Officers Commissioned in 1990, Selected Periods, 1990-2001

VARIABLE	1990-2001 (TOTAL)[a]		1990-1994[b]		1990-1994[c]		1995-2001[d]	
TOTAL OBS.	5,915		5,915		4,446		3,899	
	#	%	#	%	#	%	#	%
MARRIED	3,764	63.6	3,290[e]	55.7	2,647[f]	59.5	2,940	75.4
DIVORCED	325	5.5	151	2.6	134	3.0	179	4.6
SEA (IN YEARS)	0.7	-	0.5	-	1.1	-	0.3	-
SEAGONE	1,635	27.6	1,405	23.8	1,121	25.2	654	16.8
FOREIGN	1,243	21.0	806	13.6	679	15.3	742	19.0

VARIABLE	1990-2001 (TOTAL) [a]		1990-1994 [b]		1990-1994 [c]		1995-2001 [d]	
TOTAL OBS.	5,915		5,915		4,446		3,899	
	#	%	#	%	#	%	#	%
FEMALE	921	15.6	921	15.6	630	14.2	545	14.0
BLACK	404	6.8	404	6.8	293	6.6	264	6.8
OTHER	302	5.1	302	5.1	215	4.8	198	5.1
AGE1	1,975	33.4	1,975	33.4	1,571	35.3	1,378	35.3
PRIOR	1,252	21.2	1,252	21.2	984	22.1	882	22.6
PG	1,060	17.9	401	6.8	192	4.3	834	21.4
MILSPOUSE	456	7.7	357	6.3	289	6.5	347	8.9
TOPSECRET	70	1.2	70	1.2	64	1.4	61	1.6
SWO	785	13.3	744	12.6	577	13.0	478	12.3
SEAL	55	0.9	54	0.9	48	1.1	44	1.1
SUB	481	8.1	467	7.9	460	10.4	339	8.7
DIVER	35	0.6	30	0.5	22	0.5	22	0.6
PILOT	1,658	28.0	1,628	28.0	1,410	31.7	1,254	32.2
SURGEON	121	2.1	76	1.3	36	0.8	71	1.8
EMERGENCY	120	2.0	90	1.5	57	1.3	57	1.5
LEGISLATIVE	250	4.2	218	3.7	159	3.6	85	2.2
INTELLIGENCE	136	2.3	122	2.1	98	2.2	102	2.6
PERSONNEL	130	2.2	48	0.8	45	1.0	116	3.0
NUCLEARENG	231	3.9	178	3.0	165	3.2	92	2.4
NROTCSCHOLAR	1,397	23.6	1,397	23.6	1,076	24.2	940	24.1
NROTCNONSCHOLAR	192	3.3	192	3.3	121	2.7	111	2.9
OCS	1,211	20.5	1,211	20.5	897	20.2	762	19.5
DIRAPP	2,137	36.1	2,137	36.1	1,501	33.8	1,346	34.5
AVIPROG	78	1.3	78	1.3	53	1.2	46	1.2
EARLYPRO	259	4.4	N.A.	N.A.	N.A.	N.A	259	6.6
O1	1,659	28.1	1,659	28.1	1,407	31.7	1,268	32.5
O2	904	15.3	934	15.3	743	16.7	650	16.7
O3	1,307	22.1	735	12.4	555	12.5	1,063	27.3
O4	174	2.9	101	1.7	49	1.1	111	2.9
O5	30	0.5	27	0.5	18	0.4	19	0.5
O6	15	0.3	15	0.3	9	0.2	8	0.2

NOTE: N.A.: Not available

a: All officers are include d, no period separation.

b: All officers, and only marital status and duties in the first five years are included.

c: Officers who attritted within the first years of service are excluded.

d: Officers who were still in duty at the end of fifth year of service are included.

e: 1634 of the officers were married at entry/got married in 1990.

f: 1270 of the officers were married at entry/got married in 1990.

Source: Derived from DMDC, 1990 Navy Officer Cohort Data File.

Tables IV.4 and IV.5 show gender differences in marital status. These tables are basically the same as the previous table, but Table IV.4 shows descriptive statistics for only male officers, and Table IV.5 shows the same descriptive statistics for women. Comparing these two tables, the differences in duties (no female officers as submariner, diver, SEAL, or nuclear engineer) and marital status (higher divorce rates for female officers) can be easily seen. As seen here, the number of female pilots and SWOs are significantly lower than the totals for males. Female officers also have less sea duty, but more foreign duty than do their male counterparts. The commissioning sources of both genders are also very different. More than 60 percent of female officers were commissioned by direct appointment, but only 30 percent of male officers are from this source. The proportion of black female officers is noticeably higher than the proportion of black male officers, whereas the proportions of male and female officers in the other races are similar.

Table IV.4. Descriptive Statistics For Navy Officers Commissioned in 1990 (Men Only), Selected Periods, 1990-2001

VARIABLE	**1990-2001 (TOTAL)[a]**		**1990-1994[b]**		**1990-1994[c]**		**1995-2001[d]**	
TOTAL OBS.	**4,994**		**4,994**		**3,816**		**3,354**	
	#	**%**	**#**	**%**	**#**	**%**	**#**	**%**
MARRIED	3,285	65.8	2,873[e]	57.5	2,349[f]	61.6	2,600	77.5
DIVORCED	251	5.0	112	2.2	101	2.7	143	4.3
SEA (IN YEARS)	0.7	-	0.6	-	0.6	-	0.8	-
SEAGONE	1,560	31.2	1,346	27.0	1,076	28.2	629	18.8
FOREIGN	1,006	20.1	615	12.1	509	13.3	620	18.5
FEMALE	None	None	None	None	None	None	None	None
BLACK	297	6.0	297	6.0	218	5.7	197	5.9
OTHER	256	5.1	256	5.1	179	4.7	163	4.9
AGE1	1,742	34.9	1,742	34.9	1,408	36.9	1,233	36.8
PRIOR	983	19.7	983	19.7	803	21.0	716	21.4
PG	857	17.2	313	6.3	136	3.6	668	19.9
MILSPOUSE	195	3.9	148	3.0	126	3.3	161	4.8
TOPSECRET	63	1.3	63	1.3	57	1.5	55	1.6
SWO	755	15.1	715	14.3	554	14.5	464	13.8
SEAL	55	1.1	54	1.1	48	1.3	44	1.3
SUB	481	9.6	467	9.4	460	12.1	339	10.1
DIVER	35	0.7	30	0.6	22	0.6	22	0.7

VARIABLE	1990-2001 (TOTAL)[a]		1990-1994[b]		1990-1994[c]		1995-2001[d]	
TOTAL OBS.	4,994		4,994		3,816		3,354	
	#	%	#	%	#	%	#	%
PILOT	1,596	32.0	1,594	31.9	1,359	35.6	1,210	36.1
SURGEON	113	2.3	74	1.5	35	0.9	64	1.9
EMERGENCY	32	0.6	19	0.4	11	0.3	18	0.5
LEGISLATIVE	200	4.0	170	3.4	125	3.3	69	2.1
INTELLIGENCE	110	2.2	102	2.0	81	2.1	81	2.4
PERSONNEL	93	1.9	28	0.6	25	0.7	85	2.5
NUCLEARENG	231	4.6	178	3.6	165	4.3	92	2.7
NROTCSCHOLAR	1,290	25.8	1,290	25.8	993	26.0	865	25.8
NROTCNONSCHOLAR	183	3.7	183	3.7	115	3.0	106	3.2
OCS	1,076	21.6	1,076	21.6	803	21.0	677	20.2
DIRAPP	1,568	31.4	1,568	31.4	1,140	29.9	1,032	30.8
AVIPROG	68	1.4	68	1.4	49	1.3	45	1.3
EARLYPRO	236	4.7	N.A.	N.A.	N.A.	N.A.	236	7.0
O1	1,498	30.0	1,498	30.0	1,284	33.7	1,168	34.8
O2	748	15.0	748	15.0	639	16.8	564	16.8
O3	1,104	22.1	610	12.2	457	12.0	898	26.8
O4	144	2.9	89	1.8	45	1.2	89	2.7
O5	27	0.5	25	0.5	16	0.4	16	0.5
O6	15	0.3	15	0.3	9	0.2	8	0.2

NOTE: N.A.: Not available
a = All officers are included, no period separation.
b = All officers are included, only marital status and duties in the first five years are included.
c = Officers who attritted within the first years of service are excluded.
d = Officers who were still in duty at the end of fifth year of service are included.
e = 1447 of the officers were married at entry/got married in 1990.
f = 1136 of the officers were married at entry/got married in 1990.
Source: Derived from DMDC, 1990 Navy Officer Cohort Data File.

Table IV.5. Descriptive Statistics For Navy Officers Commissioned in 1990 (Women Only), Selected Periods, 1990-2001

VARIABLE	1990-2001 (TOTAL)[a]		1990-1994[b]		1990-1994[c]		1995-2001[d]	
TOTAL OBS.	921		921		630		545	
	#	%	#	%	#	%	#	%
MARRIED	479	52.0	417 [e]	45.3	298 [f]	47.3	340	62.4
DIVORCED	74	8.0	39	4.2	33	5.2	36	6.6
SEA (IN YEARS)	0.2	-	0.1	-	0.2	-	0.1	-
SEAGONE	75	8.1	59	6.5	45	7.1	25	4.6
FOREIGN	237	25.7	191	20.7	170	27.0	122	22.4

VARIABLE	1990-2001 (TOTAL)[a]		1990-1994[b]		1990-1994[c]		1995-2001[d]	
TOTAL OBS.	921		921		630		545	
	#	%	#	%	#	%	#	%
FEMALE	921	100.0	921	100.0	630	100.0	545	100.0
BLACK	107	11.6	107	11.6	75	11.9	67	12.3
OTHER	46	5.0	46	5.0	36	5.7	35	6.4
AGE1	233	25.3	233	25.3	163	25.9	145	26.6
PRIOR	269	29.2	269	29.2	181	28.7	166	30.5
PG	203	22.0	88	9.6	56	8.1	166	30.5
MILSPOUSE	261	28.3	209	22.7	163	25.9	186	34.1
TOPSECRET	7	0.8	7	0.8	7	1.1	6	1.1
SWO	30	3.3	29	3.2	23	3.7	14	2.6
SEAL	None	None	None	None	None	None	none	none
SUB	None	None	None	None	None	None	none	none
DIVER	None	None	None	None	None	None	none	none
PILOT	62	6.7	62	6.7	51	8.1	44	8.1
SURGEON	8	0.9	2	0.2	1	0.2	7	1.3
EMERGENCY	88	9.6	71	7.7	46	7.3	39	7.2
LEGISLATIVE	50	5.4	48	5.2	34	5.4	16	2.9
INTELLIGENCE	26	2.8	20	2.2	17	2.7	21	3.9
PERSONNEL	37	4.0	20	2.	20	3.2	31	5.7
NUCLEARENG	None	None	none	none	None	None	None	None
NROTCSCHOLAR	107	11.6	107	11.6	83	13.2	75	13.8
NROTCNONSCHOLAR	9	1.0	9	1.0	6	1.0	5	0.9
OCS	135	14.7	135	14.7	94	14.9	85	15.6
DIRAPP	569	61.8	569	61.8	361	57.3	314	57.6
AVIPROG	10	1.1	10	1.1	4	0.6	1	0.2
EARLYPRO	23	2.5	N.A.	2.5	N.A.	N.A.	23	4.2
O1	161	17.5	161	17.5	123	19.5	100	18.4
O2	156	16.9	156	16.9	104	16.5	86	15.8
O3	203	22.0	125	13.6	98	15.6	165	30.3
O4	30	3.3	12	1.3	4	0.6	22	4.0
O5	3	0.3	2	0.3	2	0.3	3	0.6
O6	none	none	none	none	none	none	none	none

a = All officers are included, no period separation
b = All officers are included, only marital status and duties in the first five years are included
c = Officers who attritted within the first years of service are excluded
d = Officers who were still in duty at the end of fifth year of service are included
e = 187 of the officers were married at entry/got married in 1990
f = 134 of the officers were married at entry/got married in 1990
Source: Derived from DMDC, 1990 Navy Officer Cohort Data File.

Table IV.6 shows the distribution of marriages and divorces for the Navy officers between 1990-2001. The number of marriages constantly decreases after 1990, but the number of divorces fluctuates. As seen here, almost 30 percent of officers were married before or during their first year of commissioned service. However, since DMDC data do not contain information on whether the officers were married at entry, it is assumed that those who were married in 1990 were married at the time they were commissioned. Regardless of the exact point of marriage, little difference likely exists between the effects of duties on the marital status of officers who were married a few months before entry or a few months after entry.

Table IV.6. Navy Officers Commissioned in 1990: Distribution of Marriages and Divorces by Year, 1990-2001

YEARS	MARRIAGES		DIVORCES	
	#	% (OF ALL OBS.)	#	% (OF ALL OBS.)
1990	1,742	29.5	N.A.	N.A.
1991	550	9.3	31	0.5
1992	496	8.4	36	0.6
1993	398	6.7	41	0.7
1994	287	4.9	43	0.7
1995	231	3.9	30	0.5
1996	177	3.0	41	0.7
1997	151	2.6	44	0.7
1998	98	1.7	25	0.4
1999	49	0.8	16	0.3
2000	41	0.7	18	0.3
2001	37	0.6	6	0.1
TOTAL	**4,257**	**72.0**	**331**	**5.6**

Source: Derived from DMDC, 1990 Navy Officer Cohort Data File

N.A.= Not available

When total numbers and percentages in Table IV.6 are compared with those in Table IV.3, certain discrepancies emerge. The discrepancies stem from the differences in the units of the tables. Table IV.3 shows the total number of officers who married and stayed married during military service, or who divorced at least once. However, Table IV.6 shows the total number of marriages and divorces. If, for example, an officer divorces twice, it is counted once in Table IV.3, but twice in Table IV.6. In addition, the

number of the marriages of divorced officers is included in Table IV.6, but is excluded from the married category and is included in the divorced category in Table IV.3. Table IV.7 shows the multiple marriages and divorces. With a simple calculation, the numbers in three tables can be matched as follows:

For marriages: 4,257 marriages (total number of marriages shown in Table IV.6) minus 168 multiple marriages (160 officers who married twice plus 4 officers who married three times, as shown in Table IV.7) minus 325 divorced officers (from Table IV.3.) equals 3,764 married officers (same as the number in Table IV.3)

For divorces: 331 divorces (total number of divorces shown in Table IV.6) minus 6 divorces (multiple divorces shown in Table IV.7) equals 325 divorced officers (same as the number in Table IV.3)

According to Table IV.7, 160 officers married twice and 4 officers married three times; on the other hand, 6 officers divorced twice and none of them divorced more than twice. These numbers show that half of the divorced officers did not get married again.

Table IV.7. Officers Commissioned in 1990: Multiple Marriages and Divorces, 1990-2001

FREQUENCY	MARRIED	DIVORCED
NEVER	1,826	5,590
ONCE	3,925	319
TWICE	160	6
THREE TIMES	4	0

Source: Derived from DMDC, 1990 Navy Officer Cohort Data File.

1. Selection of Variables

This study uses all of the relevant variables in the DMDC data files that might help to explain the marriage and divorce decisions of Navy officers. Most of the variables that are needed to test the study's hypotheses could be derived from the data; however, some of the variables that could help explain marriage and divorce decisions could not be used because of unavailability. One of the missing variables is the number of dependents. This variable would help in analyzing the effects of having children on the divorce decisions of the officers. Problems in the data caused by the definition of

dependents (some officers themselves were counted as dependents and some were not) did not allow using this important variable.

In addition, some assumptions needed to be made about the variables. One assumption is that all officers who were married in 1990 are assumed to be married at entry, which was mentioned previously. Another assumption concerns deployments. DMDC data do not contain actual deployment information. Although DMDC data have the unit identification codes (UICs) of the ships to which officers are assigned, it was not possible to include the exact deploying units and the length of deployments. Instead, the code for sea duties was used to proxy for deployments, assuming that ships have deployments for 5-6 months in every one- or two-year period.

The reasons for selecting explanatory variables are listed below.

Foreign: This variable was created to test the hypothesis that "Duty overseas will tend to delay marriage for a single officer while increasing the likelihood of divorce for those who are married." It is created by using the duty location codes in the data.

Sea/Seagone: These variables were created to test the hypothesis that "married officers who are on sea duty are more likely to divorce," and "sea duty in the early years of military service causes later marriage among single officers." The difference between these two variables is their units. Variable "seagone" is binary and indicates if the officer has ever had a sea duty, and variable "sea" measures the years of sea duty. Within the DMDC 1990 Navy officer cohort data, 72.4 percent of the officers never had sea duty in their total service years. On the other hand, other officers had assignments for sea duty up to 8 years within the 1990-2001 period.

Milspouse: As mentioned in Chapter III, having a military spouse may cause additional family problems for officers. This variable was created to test if officers who have military spouses are more likely to divorce.

Rank Variables: These variables show the ranks when officers got married. It was created to test the hypothesis that "officers who marry in early years of military service are more likely to divorce." In fact, the effects of early marriage might also be tested by only the year of marriage (and it will be tested in different time frames), but

using the ranks will specifically reflect the effects of hierarchical difficulties/advantages caused by rank on marital status. If officers who marry in a certain rank tend to divorce significantly more or less than officers who marry in other ranks, then this rank is worth analyzing in terms of its effects on marital status.

Prior: This variable identifies persons who have previous military service experience before being commissioned as an officer. Since this thesis analyzes the effects of duties and assignments on marital status, using this variable will be helpful to test if prior military experiences cause any changes in the marital status of officers.

Pg: This variable explains if graduate education after becoming an officer affects the marriage or divorce decisions of the officers. Although the name of the variable is given as pg, this variable includes any education that is at least one year long.

Early Promotion: As mentioned in Chapter III, previous studies suggest that married male officers are more likely than those who are unmarried to have better supervisor evaluations and better promotion rates. This variable is included to test the relationship between marital status and performance. In these data, most of officers were promoted to O-4 in the year 2000. If officers who were O-1 at entry became O-4 before the year 2000, they are considered as "early promoted."

The following duty codes are created to test the hypothesis that "riskier and more arduous duty has a negative effect on officers and causes a higher rate of divorce than do other types of duty." Most of these duties have monetary incentives to compensate for the difficulties caused by the nature of the duty.

Topsecret: DMDC data contain information about the security codes of officers and "Top Secret" is the highest code given. It is obvious that the reason an officer is given this security code is the nature of the officer's duty, which is probably a risky and secret one that requires more devotion from the officer than do other duties.

SWO: As seen previously in Table II.5, surface warfare officers have approximately seven sea rotations during their career. In addition to deployments, being a SWO is much more arduous and risky than are most other duties.

SEAL: Being a Navy SEAL requires both physical and mental fitness, and the nature of the duty is extremely risky, even during exercises or regular training.

Sub: Submariners tend to have long-term deployments as well as very risky and arduous duty. Possible differences in the effects of being a submariner and being a SWO on the marital status can be attributed to reasons other than the deployment, such as working conditions. Although these two duties are similar, important differences exist in working conditions. For example, during deployments submariners are less likely to communicate with their families than are SWOs due to physical and tactical constraints.

Pilot: Pilots are another group of officers who work in risky and arduous conditions. Although this variable was created to include all types of pilots, a significant percentage of this group also must deploy.

Surgeon: Being a surgeon is different from the duties mentioned above, but it is still risky and arduous, not necessarily in the form of a personal life risk, but a life risk for the surgeon's patients, which makes it very tiring and stressful.

Emergency: Being an emergency care nurse is also a stressful duty. These are the officers who mostly conduct first aid procedures and who have to deal with injuries and wounds. In addition, their working hours are not limited to regular office hours, which also affects personal or family lives.

Legislative: Although officers in legislative duties have relatively more regular working conditions, it is assumed that they have considerable responsibility, which may cause additional stress and separate these officers from the others.

Diver: Being a diver, like being a Navy SEAL, requires both physical and mental fitness. The nature of the duty is also extremely risky.

Intelligence: Intelligence duties can be in various working conditions, but basically they require officers to separate their family lives from their work lives. Generally they are prohibited from discussing their work at home. This separation of work and personal lives makes it interesting to analyze the effects of their duties on marital status.

Nuclear Engineer: This variable contains information on officers who have engineering duties in nuclear-powered ships. The officers not only work onboard ships and have deployments, but also have the risk of exposure to radioactivity.

Personnel: At first glance, officers who are recruiters and detailers seem to have relatively regular office works. However, these officers' duties have extremely high impact on their family lives.

These selected duties are used to detect if riskier and more arduous assignments have a significant effect on the marital status of officers. One of the constraints that affected the selection of "arduous and risky jobs" for this study was the insufficient years of service of the officers for some duties. For example, only eight commanding officers were identified out of 5,915 officers in the 1990 cohort. Thus it was not possible to analyze the effects of being a commanding officer in this thesis.

B. METHODOLOGY

The dependent variables in the models are binary and indicate whether a person is married or not, single or not, or divorced or not. Logit multivariate regression models are used to estimate the effects of military assignments and duties on the marital status of Navy officers. DMDC data used in this thesis do not indicate cohabitation, separation, or being widowed, thus we only analyze the effects of being married, divorced, and single. The models will explain the decision to marry and to divorce. The models will also be divided into different career stages. Each career stage will include a different number of officers due to attrition. Two models are estimated: one that consists of the basic explanatory variables (gender, race, sea duty, foreign duty, entry age, and being prior enlisted), and one that includes all relevant explanatory variables.

Another important issue is the inclusion of female officers in the sample. Descriptive statistics in Tables IV.3-IV.5 emphasize the differences between male and female officers. One of the important differences is the restriction of assigning female officers to certain duties. For example it should be noted that, among the selected duty variables in this thesis, no female officers are submariners, SEALS, divers, or nuclear engineers. As a result, many other important differences can be found between men and women. For example, the percentage of female officers who had sea duty is significantly

lower than that of male officers: 8 percent for female officers and 31 percent for their male counterparts. These differences will affect some variables, such as the impact of being a submariner on the marital status of officers, when both male and female officers are included in the models. However, the cost of excluding female officers from the models may be high, since 15 percent of all officers are women. Also female officers appear to be strongly affected by duty and assignment policies. For example, the divorce rate of female officers is 8 percent, compared with 5 percent for male officers. Thus, exclusion of female officers from the samples may reduce the credibility of the study. To study the effects on female officers and prevent possible biases, all models are estimated both with and without female officers.

1. Theoretical Models

As mentioned in Chapter III, previous studies have looked at the effects of marital status on military-related issues, such as promotion and retention. Since this study will be the first to analyze the effects of different military duties and assignments on marital status, it is not possible to derive hypotheses directly from previous studies. Instead, five basic hypotheses were developed based on a review of literature relating generally to marriage and divorce. These five hypotheses are: (1) married officers who serve on sea duty are more likely to divorce; (2) officers who marry early in their military career are more likely to divorce; (3) sea duty in the early years of military service causes individuals to marry later; (4) riskier and more arduous duty has a negative effect on officers, which causes a higher rate of divorce than do other types of duty; and (5) duty overseas tends to delay marriage for a single officer while increasing the likelihood of divorce for those who are married.

These hypotheses require construction of variables for deployment (to test hypotheses 1 and 3), marriage time (to test hypotheses 2 and 3), various risky and arduous duties (to test hypothesis 4), and foreign duties (to test hypothesis 5). In addition to these variables, other relevant variables that could be derived from the data are also used in the models to control for other factors that may affect the marriage and divorce decisions of Navy officers.

a. Marriage Models

The basic model (equation 1) used to explain the marriage decision of Navy officers is specified as follows:

Married = ß0 + ß1*foreign + (ß2*female) + ß3*black + ß4*other + ß5*age + ß6*priorenlisted + ß7*sea + u

Equation (1) does not permit a test of hypothesis 4 about the negative effects of risky and arduous duties. The reason duties are excluded from equation (1) is related to the variable, female. Including the variable, female, is important because, as mentioned in Chapter III, 7,736 active-duty female officers served in the Navy in year 2000 (15 percent of all Navy commissioned officers). On the other hand, since female officers are not eligible for some risky and arduous duties, using both the female variable and duty variables in the same model can bias the estimated effects of these duties.

The full model (equation 2) generated to explain the marriage decisions of Navy officers is as follows:

Married = ß0 + ß1*foreign + (ß2*female) + ß3*black + ß4*other + ß5*age + ß6*priorenlisted + ß7*sea + ß8*pg + ß9*topsecret + ß10*nrotcscholarship + ß11*nrotcnonscholarship + ß12*ocs + ß13*dirapp + ß14*aviationprogram + ß15*swo + ß16*seal + ß17*submariner + ß18*pilot + ß19*surgeon + ß20*emergency + ß21*legislative + ß22*diver + ß23*intelligence + ß24*nuclearengineer + ß25*personnel + ß26*earlypro + u

Based on the literature review, the expected effects of the explanatory variables on the dependent variable are as follows:

Foreign Duty: According to hypothesis 5, foreign duties will delay the marriage decision because being away from home reduces the opportunity to find a spouse. On the other hand, in some cases, pessimism regarding the opportunity or ability to find a spouse in the future may create an incentive to marry early, if foreign duty is scheduled. These two different factors may affect the timing of marriage, but it is hard to assess if they increase or decrease the probability of marriage.

Female: Marriage rates of men and women are 61.7 and 57.9 percent, respectively, in the U.S. population, and 67.1 and 45.7 percent, respectively, in the Navy. Male officers are more likely, and female officers are less likely, to marry than are their civilian counterparts.

Black: Marriage rates of black officers are significantly lower than those of white officers (41.8 percent versus 62.1 percent).

Other: Marriage rates of Hispanic officers are 58.9 percent. Although the variable "other" contains all races except white and black, the marriage rate of Hispanic officers suggest that the marriage rate of "other" officers is close to the rate of white officers (62.1 percent).

Age: Marriage rates increase with age until 55-64 years old, and then start to fall. The binary age variable created for this study indicates if entry age is below 22. This variable tests if being younger at entry affects the marriage decision of Navy officers.

Prior Enlisted: Prior enlisted officers are more likely to be married at entry, probably because they have a stable job earlier than do other officers. In addition, officers commissioned through the US Naval Academy were not allowed to marry while they were midshipmen. At the same time since persons with prior enlisted source are more likely to be married when commissioned, they are less likely to get married after commissioning. It is difficult to determine whether having prior enlisted sources affects the overall marriage rates.

Sea Duty: According to hypothesis 3, sea duty in the early years of military service delays marriage among single officers. Based on this hypothesis, it is expected that officers who have deployments are more likely to marry later than others, possibly because of waiting for their shore duty cycle. It is difficult to determine whether deployments increase or decrease the total number of marriages.

Pg: Long-term periods for education provide opportunities for officers to get away from deployments and reduce the uncertainties about their future plans. Single

officers may benefit from this relatively stable period, which may encourage them to seek even more personal stability through marriage.

Early Promotion: As mentioned in Chapter III, previous studies proved that a strong relationship exists between marital status and on-the-job performance. Based on the literature review, it is expected that officers who get earlier promotions are also more likely to get married.

Duty Variables: The selected duties for this thesis are riskier or more arduous than other duties, and the possibility of job-related stress is high. Although it is easier to say that stressful jobs may adversely affect family life, it is not so easy to make any assessment about the effects of stressful jobs on the decision to marry. However, duties that require deployment, such as being a SWO or a submariner, may be a common effect of sea duty.

Commissioning Source Variables: For this group of variables, the base commissioning source is the US Naval Academy. Since midshipmen are not allowed to get married before graduation, officers from the US Naval Academy will marry after commissioning. However, officers from other sources may marry before becoming officers. Because of this difference, it is expected that officers who are not Academy graduates are less likely to get married after becoming officers than are Academy graduates.

b. Divorce Models

The basic model (equation 3) generated to explain the divorce decisions of Navy officers is as follows:

Divorced = ß0 + ß1*foreign + (ß2*female) + ß3*black + ß4*other + ß5*age + ß6*priorenlisted + ß7*sea +ß8*militaryspouse + u

This model tests the first and fifth hypotheses: "married officers who are on sea duty are more likely to divorce" and "duty overseas will tend to delay marriage for a single officer while increasing the likelihood of divorce for those who are married." Since the effects of being female on divorce needs to be tested, duty variables were not added to this model to avoid the bias caused by female officers being restricted from

some duties. The only difference between the basics models of divorce and marriage is the military spouse variable. By adding this variable, it becomes possible to test the effect of having a military spouse on divorce.

The full model (equation 4) generated to explain the divorce decisions of Navy officers is as follows:

Divorced = ß0 + ß1*foreign + (ß2*female) + ß3*black + ß4*other + ß5*age + ß6*priorenlisted + ß7*sea + ß8*pg + ß9*topsecret + ß10*nrotcscholarship + ß11*nrotcnonscholarship + ß12*ocs + ß13* dirapp + ß14*aviationprogram + ß15*swo + ß16*seal + ß17*submariner + ß18*pilot + ß19*surgeon + ß20*emergency + ß21*legislative + ß22*diver + ß23*intelligence + ß24*nuclearengineer + ß25*personnel + ß26*milspouse + ß27*ranks +ß28*earlypro + u

The rank variables are included to the full divorce model to test the second hypothesis; "officers who marry in the early years of military service are more likely to divorce." In addition, as with the basic models, another difference between the full marriage model and the full divorce model is the inclusion of the military spouse variable.

Based on the literature review, expected effects of the explanatory variables on the probability of divorce are as follows:

Foreign Duty: As mentioned in Chapter II, dependents of an officer are screened before the approval of the officer's overseas duty assignment. This screening may prevent families that already have problems to be assigned to foreign duty. However, problems such as culture shock, being away from relatives and friends, and child-related issues might increase the likelihood of getting divorced for the families that are in overseas duty.

Female: The divorce rates of men and women are 10.8 percent and 8.8 percent, respectively, in the U.S. population, and 40.8 percent and 25.3 percent, respectively, in all military services. These values indicate that female officers are more likely to divorce than are their male counterparts.

Black: The divorce rate of black officers is higher than that of white officers (11.7 percent versus 9.8 percent). Thus, it is expected that being a black officer increases the likelihood of getting divorced.

Other: The divorce rate of Hispanic officers is 7.7 percent. Although the variable "other" contains all races except white and black, the divorce rate of Hispanic officers suggests that marriage rate of "other" officers may be lower than divorce rate of white officers (9.8 percent).

Age: As discussed in Chapter III, divorce rates increase with age until 45-54 years old, and then start to fall. The binary age variable created for this thesis indicates if entry age is below 22. It is difficult to make assessment about the effects of lower entry age on the divorces.

Prior Enlisted: It is difficult to make any assessment about the relationship between having prior enlisted source and getting divorced. If officers with prior enlisted source use their relatively longer military experiences when they marry and choose their spouses due to the expectations of military life, then being prior enlisted may reduce the divorce rate to some extent.

Sea Duty: According to the first hypothesis, married officers who are on sea duty are more likely to divorce. Based on the literature review, deployments have a significant adverse effect on families, especially for female officers. These negative effects are more likely to increase the possibility of a divorce for the officers who have sea duty.

Pg: Officers may tend to get divorced during long-term education periods because this period is probably the first time that many families come together for a long period. During this time, spouses have unprecedented opportunity to recognize and evaluate each other. This may work to strengthen a relationship. It may also lead to a reevaluation of the marriage and divorce.

Early Promotion: As mentioned in Chapter III, previous studies suggest that there is a strong relationship between marital status and on-the-job performance. However, it is not easy to make an assessment about the relationship between early

promotion and divorces. The positive effect of being married on supervisor evaluations may keep ambitious officers from divorcing before getting an expected promotion. On the other hand, working extremely hard to get early promotion may cause serious problems within a family that may result in divorce.

Duty Variables: The selected duties for this thesis are riskier or more arduous than other duties and the possibility of job-related stress is high. Due to the degree of the intensity of job-related stress, serious problems may surface within families that may cause a divorce. On the other hand, most of these duties have monetary incentives, and together with other nonmonetary incentives, these negative effects can be ameliorated.

Commissioning Source Variables: It is not easy to make any assessment about the relationship between the commissioning source and getting divorced.

2. Models That Are Used in the Thesis

The statistical models used in the thesis are described below. Sixteen models are developed, and each is slightly unique. As mentioned before, these 16 models are estimated twice, one with and one without female officers, yielding 32 total regressions.

In terms of time separation, three models are used. The first analyzes the first five years of an officer's career (1990-1994); the second analyzes the rest of the career period (1995-2001); and the third analyzes the entire period. The first period (1990-1994) indicates "early marriages and divorces," and the second period indicates "late marriages and divorces." The first period is named the minimum service requirement (MSR) period for easier understanding. Although some of the officers in the sample have an obligation to serve within an MSR period, most of the officers do not. Thus, a noticeable percentage of officers who do not have an obligation leave the Navy within this period.

Tables IV.8-IV.23 describe the 16 models used in the study. For each model, explanations are presented for the dependent variable, the period covered, the sample size (both with and without female officers), and the hypotheses and additional variables it tested. The numbers in Italics used in the sample and dependent variable sections of the models show only male officers (when female officers were excluded from the data).

a. Marriage Models

(1) Basic Model (1) – Period After MSR (1995 and later)

Table IV.8. Model 1 Description

Sample	Officers who attrite within MSR (before 1995) are excluded and officers who were on duty in 1995 are included. (N=3,899; *3,354*). In this model, only the duties (such as foreign duties, deployments) after MSR are taken into account.
Dependent Variable	Getting Married = Officers who got married after MSR (1995 and later) are the focus group (721 officers; *608*), and officers who are married at entry, or got married within MSR (before 1995), or single, or divorced form the comparison group. (3,178 officers; *2,746*)
Hypotheses Tested	Sea duty in the early years of military service causes later marriage among single officers (by variable sea); Duty overseas will tend to delay marriage for a single officer while increasing the likelihood of divorce for those who are married. (by variable foreign)
Other Variables Tested	Other variables are gender, race, being prior enlisted, and entry age.
Benefit	This model tests the effects of variables on late marriages.

(2) Basic Model (2) – Period After MSR (1995 and later)

Table IV.9. Model 2 Description

Sample	Officers who attrite within MSR (before 1995) are excluded and officers who were on duty in 1995 are included. (N=3,899; *3,354*). In this model, only the duties (such as foreign duties, deployments) after MSR are taken into account.
Dependent Variable	Getting Married = All married officers who didn't attrite within MSR are the focus group (2,940 officers; *2,600*), and officers who are single or divorced form the comparison group. (959 officers; *754*)
Hypotheses Tested	Sea duty in the early years of military service causes later marriage among single officers (by variable sea); Duty overseas will tend to delay marriage for a single officer while increasing the likelihood of divorce for those who are married. (by variable foreign)
Other Variables Tested	Other variables are gender, race, being prior enlisted, and entry age.
Benefit	By comparing models one and two, the difference between officers who got married any time during their careers and officers who got married late can be tested.

(3) Basic Model (3) – Period Within MSR (Before 1995)

Table IV.10. Model 3 Description

Sample	All officers in the sample are included. (N=5,915; *4,994*). In this model, only the duties (such as foreign duties, deployments) within MSR are taken into account.
Dependent Variable	Getting Married = Officers who got married within MSR are the focus group (1,656 officers; *1,426*), and officers who are married at entry, or got married after MSR (1995 and later), single or divorced form the comparison group. (4,259 officers; *3,568*)
Hypotheses Tested	Sea duty in the early years of military service causes later marriage among single officers (by variable sea); Duty overseas will tend to delay marriage for a single officer while increasing the likelihood of divorce for those who are married. (by variable foreign)
Other Variables Tested	Other variables are gender, race, being prior enlisted, and entry age.
Benefit	Using this model, the effects of variables on early marriages are tested.

(4) Basic Model (4) – Period Within MSR (Before 1995)

Table IV.11. Model 4 Description

Sample	Officers who attrite within MSR are excluded and the sample consists of officers who stayed in the Navy until 1995. (N=4,446; *3,816*). In this model, only the duties (such as foreign duties, deployments) within MSR are taken into account.
Dependent Variable	Getting Married = Officers who got married within MSR are the focus group (1,377 officers; *1,213*), and officers who are married at entry, or got married after MSR (1995 and later), single or divorced form the other group. (3,069 officers; *2,603*)
Hypotheses Tested	Sea duty in the early years of military service causes later marriage among single officers (by variable sea); Duty overseas will tend to delay marriage for a single officer while increasing the likelihood of divorce for those who are married. (by variable foreign)
Other Variables Tested	Other variables are gender, race, being prior enlisted, and entry age.
Benefit	Comparing this model with Model 3, the early marriage and attrition relationship is being tested.

(5) Full Model (5) – Period After MSR (1995 and later)

Table IV.12. Model 5 Description

Sample	Officers who attrite within MSR (before 1995) are excluded and officers who were on duty in 1995 are included. (N=3,899; *3,354*). In this model, only the duties (such as foreign duties, deployments) after MSR are taken into account.
Dependent Variable	Getting Married = Officers who got married after MSR (1995 and later) are the focus group (721 officers; *608*), and officers who are married at entry, or got married within MSR (before 1995), or single, or divorced form the comparison group. (3,178 officers; *2,746*)
Hypotheses Tested	Sea duty in the early years of military service causes later marriage among single officers (by variable sea); Duty overseas will tend to delay marriage for a single officer while increasing the likelihood of divorce for those who are married. (by variable foreign); Riskier and more arduous duty has a negative effect on officers and causes a higher rate of divorces than do other types of duty (by duty variables).
Other Variables Tested	Other variables are gender, race, being prior enlisted, entry age, commissioning source, early promotion, and having additional education
Benefit	This model is basically the same as Model 1. This model tests the effects of additional variables on late marriages.

(6) Full Model (6) – Period After MSR (1995 and later)

Table IV.13. Model 6 Description

Sample	Officers who attrite within MSR (before 1995) are excluded and officers who were in duty in 1995 are included. (N=3,899; *3,354*). In this model, only the duties (such as foreign duties, deployments) after MSR are taken into account.
Dependent Variable	Getting Married = All married officers who didn't attrite within MSR are the focus group (2,940 officers; *2,600*), and officers who are single or divorced form the comparison group. (959 officers; *754*)
Hypotheses Tested	Sea duty in the early years of military service causes later marriage among single officers (by variable sea); Duty overseas will tend to delay marriage for a single officer while increasing the likelihood of divorce for those who are married. (by variable foreign); Riskier and more arduous duty has a negative effect on officers and causes a higher rate of divorces than do other types of duty (by duty variables).
Other Variables Tested	Other variables are gender, race, being prior enlisted, entry age, commissioning source, early promotion, and having additional education
Benefit	This model is basically the same as Model 2. By comparing models 6 and 5, the difference between officers who got married any time during their careers and officers who got married late can be tested by additional variables.

(7) Full Model (7) – Period Within MSR (Before 1995)

Table IV.14. Model 7 Description

Sample	Officers who attrite within MSR are excluded and the sample only consists of officers who stayed in the Navy until 1995. (N=4,446; *3,816*). In this model, only the duties (such as foreign duties, deployments) within MSR are taken into account.
Dependent Variable	Getting Married = Officers who got married within MSR are the focus group (1,377 officers; *1,213*), and officers who are married at entry, or got married after MSR (1995 and later), or single, or divorced form the comparison group. (3,069 officers; *2,603*)
Hypotheses Tested	Sea duty in the early years of military service causes later marriage among single officers (by variable sea); Duty overseas will tend to delay marriage for a single officer while increasing the likelihood of divorce for those who are married. (by variable foreign); Riskier and more arduous duty has a negative effect on officers and causes a higher rate of divorces than do other types of duty (by duty variables).
Other Variables Tested	The effects of gender, race, prior enlisted, entry age, commissioning source, and having additional education are also tested. (since this model covers only MSR, the variable early promotion is not tested)
Benefit	This model is basically the same as Model 4. Using this model, the effects of additional variables on early marriages are tested.

(8) Full Model (8) – Period Within MSR (Before 1995)

Table IV.15. Model 8 Description

Sample	All officers in the sample are included. (N=5,915; *4,994*). In this model, only the duties (such as foreign duties, deployments) within MSR are taken into account.
Dependent Variable	Getting Married = Officers who got married within MSR are the focus group (1,656 officers; *1,426*), and officers who are married at entry, or got married after MSR (1995 and later), or single, or divorced form the other group. (4,259 officers; *3,568*)
Hypotheses Tested	Sea duty in the early years of military service causes later marriage among single officers (by variable sea); Duty overseas will tend to delay marriage for a single officer while increasing the likelihood of divorce for those who are married. (by variable foreign); Riskier and more arduous duty has a negative effect on officers and causes a higher rate of divorces than do other types of duty (by duty variables).
Other Variables Tested	The effects of gender, race, prior enlisted, entry age, commissioning source, and having additional education are also tested. (since this model covers only MSR, the variable early promotion is not tested)
Benefit	This model is basically the same as Model 3. By comparing models 8 and 7, the early marriage and attrition relationship is being tested by additional variables.

b. Divorce Models

(1) Basic Model (9) – Period After MSR (1995 and later)

Table IV.16. Model 9 Description

Sample	Officers who attrite within MSR (before 1995) are excluded and officers who were in duty in 1995 are included. (N=3,899; *3,354*). In this model, only the duties (such as foreign duties, deployments) after MSR are taken into account.
Dependent Variable	Getting Divorced = Officers who divorced after MSR (1995 and later) are the focus group (179 officers; *143*), and officers who got divorced within MSR (before 1995), or single, or married form the comparison group. (3,720 officers; *3,211*)
Hypotheses Tested	Married officers who are on sea duty are more likely to divorce (by variable sea); Duty overseas will tend to delay marriage for a single officer while increasing the likelihood of divorce for those who are married (by variable foreign).
Other Variables Tested	Other variables are gender, race, being prior enlisted, entry age, and having a military spouse.
Benefit	Using this model, the effects of variables on late divorces are tested.

(2) Basic Model (10) – Period Within MSR (Before 1995)

Table IV.17. Model 10 Description

Sample	Officers who attrite within MSR are excluded and the sample only consists of officers who stayed in the Navy until 1995. (N=4,446; *3,816*). In this model, only the duties (such as foreign duties, deployments) within MSR are taken into account.
Dependent Variable	Getting Divorced = Officers who divorced within MSR (before 1995) are the focus group (134 officers; *101*), and officers who got divorced after MSR (1995 and later), or single, or married form the comparison group. (4,312 officers; *3,715*)
Hypotheses Tested	Married officers who are on sea duty are more likely to divorce (by variable sea); Duty overseas will tend to delay marriage for a single officer while increasing the likelihood of divorce for those who are married (by variable foreign).
Other Variables Tested	Other variables are gender, race, being prior enlisted, entry age, and having a military spouse.
Benefit	Using this model, the effects of variables on early divorces are tested.

(3) Basic Model (11) – Period Within MSR (Before 1995)

Table IV.18. Model 11 Description

Sample	All officers in the sample are included. (N=5,915; *4,994*). In this model, only the duties (such as foreign duties, deployments) within MSR are taken into account.
Dependent Variable	Getting Divorced = Officers who divorced within MSR (before 1995) are the focus group (151 officers; *112*), and officers who got divorced after MSR (1995 and later), or single, or married form the comparison group. (5,764 officers; *4,882*)
Hypotheses Tested	Married officers who are on sea duty are more likely to divorce (by variable sea); Duty overseas will tend to delay marriage for a single officer while increasing the likelihood of divorce for those who are married (by variable foreign).
Other Variables Tested	Other variables are gender, race, being prior enlisted, entry age, and having a military spouse.
Benefit	Comparing this model with Model 10, the early divorce and attrition relationship is being tested.

(4) Full Model (12) – Period Within MSR (Before 1995)

Table IV.19. Model 12 Description

Sample	All officers in the sample are included. (N=5,915; *4,994*). In this model, only the duties (such as foreign duties, deployments) within MSR are taken into account.
Dependent Variable	Getting Divorced = Officers who divorced within MSR (before 1995) are the focus group (151 officers; *112*), and officers who got divorced after MSR (1995 and later), or single, or married form the comparison group. (5,764 officers; *4,882*)
Hypotheses Tested	Married officers who are on sea duty are more likely to divorce (by variable sea); Duty overseas will tend to delay marriage for a single officer while increasing the likelihood of divorce for those who are married (by variable foreign); Riskier and more arduous duty has a negative effect on officers and causes a higher rate of divorces than do other types of duty (by duty variables); Officers who marry in the early years of military service are more likely to divorce (by rank variables).
Other Variables Tested	Other variables are gender, race, being prior enlisted, entry age, commissioning source, and having a military spouse. (since this model covers only MSR, the variable early promotion is not tested)
Benefit	This model is basically the same as Model 11. This model tests the effects of additional variables on early divorces.

(5) Full Model (13) – Period Within MSR (Before 1995)

Table IV.20. Model 13 Description

Sample	Officers who attrite within MSR are excluded and the sample only consists of officers who stayed in the Navy until 1995. (N=4,446; *3,816*). In this model, only the duties (such as foreign duties, deployments) within MSR are taken into account.
Dependent Variable	Getting Divorced = Officers who divorced within MSR (before 1995) are the focus group (134 officers; *101*), and officers who got divorced after MSR (1995 and later), or single, or married form the comparison group. (4,312 officers; *3,715*)
Hypotheses Tested	Married officers who are on sea duty are more likely to divorce (by variable sea); Duty overseas will tend to delay marriage for a single officer while increasing the likelihood of divorce for those who are married (by variable foreign); Riskier and more arduous duty has a negative effect on officers and causes a higher rate of divorces than do other types of duty (by duty variables); Officers who marry in the early years of military service are more likely to divorce (by rank variables).
Other Variables Tested	Other variables are gender, race, being prior enlisted, entry age, commissioning source, and having a military spouse. (since this model covers only MSR, the variable early promotion is not tested)
Benefit	This model is basically the same as Model 10. By comparing models 13 and 12, the early divorces and attrition relationship is being tested by additional variables.

(6) Full Model (14) – Period After MSR (1995 and later)

Table IV.21. Model 14 Description

Sample	Officers who attrite within MSR (before 1995) are excluded and officers who were in duty in 1995 are included. (N=3,899; *3,354*). In this model, only the duties (such as foreign duties, deployments) after MSR are taken into account.
Dependent Variable	Getting Divorced = Officers who divorced after MSR (1995 and later) are the focus group (179 officers; *143*), and officers who got divorced within MSR (before 1995), or single, or married form the comparison group. (3,720 officers; *3,211*)
Hypotheses Tested	Married officers who are on sea duty are more likely to divorce (by variable sea); Duty overseas will tend to delay marriage for a single officer while increasing the likelihood of divorce for those who are married (by variable foreign); Riskier and more arduous duty has a negative effect on officers and causes a higher rate of divorces than do other types of duty (by duty variables); Officers who marry in the early years of military service are more likely to divorce (by rank variables).
Other Variables Tested	Other variables are gender, race, being prior enlisted, entry age, commissioning source, and having a military spouse.
Benefit	This model is basically the same as Model 9. Using this model, the effects of additional variables on late divorces are tested.

(7) Full Model (15) – Entire Period (1990-2001)

Table IV.22. Model 15 Description

Sample	All officers in the sample are included. (N=5,915; *4,994*).
Dependent Variable	Getting Divorced = Officers who divorced during the entire period (1990-2001) are the focus group (325 officers; *251*), and officers who are single or married form the comparison group. (5,590 officers; *4,743*)
Hypotheses Tested	Married officers who are on sea duty are more likely to divorce (by variable sea); Duty overseas will tend to delay marriage for a single officer while increasing the likelihood of divorce for those who are married (by variable foreign); Riskier and more arduous duty has a negative effect on officers and causes a higher rate of divorces than do other types of duty (by duty variables); Officers who marry in the early years of military service are more likely to divorce (by rank variables).
Other Variables Tested	Other variables are gender, race, being prior enlisted, entry age, commissioning source, early promotion and having a military spouse.
Benefit	This model indicates the cumulative effects of variables on divorces of officers for the entire period.

(8) Full Model (16) – Entire Period (1990-2001)

Table IV.23. Model 16 Description

Sample	All officers in the sample are included. (N=5,915; *4,994*).
Dependent Variable	Getting Married = Officers who got married during the entire period (1990-2001) are the focus group (3,764 officers; *3,285*), and officers who are single or divorced form the comparison group. (2,151 officers; *1,709*)
Hypotheses Tested	Sea duty in the early years of military service causes later marriage among single officers (by variable sea); Duty overseas will tend to delay marriage for a single officer while increasing the likelihood of divorce for those who are married. (by variable foreign); Riskier and more arduous duty has a negative effect on officers and causes a higher rate of divorces than do other types of duty (by duty variables).
Other Variables Tested	Other variables are gender, race, being prior enlisted, entry age, commissioning source, and early promotion.
Benefit	This model indicates the cumulative effects of variables on marriages of officers for the entire period.

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V. RESULTS

The results of the models are reported in this chapter. As mentioned in Chapter IV, 16 different models are analyzed in this study. Since female officers are prohibited from some duties, in order to prevent a possible bias, each model is estimated twice: one with and one without females. When reporting the results from the baseline models, each variable used in the models is discussed separately. Then the model for those who stay and the model for the sample that omits females are reported. For these two models, only the differences from the baseline models are reported. In addition, results are discussed separately for the marriage and divorce models.

Each model is reported in a column. At the top of each column, the sample information is given. At the bottom of the columns, the number of observations, the intercept, log-likelihood value and the predicted probability of marriage (or divorce) are listed. The predicted probability is based on an officer with median or mean values of the explanatory variables. For all models, the base case is an officer who is male, white, not prior enlisted, an Academy graduate, has less risky and arduous duty, has an entry age of more than 21, did not serve in foreign duty or sea duty, who did not acquire a graduate degree, who got married when O-1 (for divorce models) and does not have a military spouse (for divorce models).

In each cell, the standard error is given in parenthesis below the coefficient, and the marginal effect (in percentage points) is given in brackets. The marginal effect reports the change in the probability of marriage (or divorce) when the explanatory variable changes by one unit, and other characteristics of the base category remain the same. Since all variables, except sea duty, are binary, the change in each variable is from 0 to 1. For example, the marginal effect of the variable "female" shows the difference in the likelihood of getting married or divorced (in percentage points) for a female as compared to a male. Marginal effects are reported as percentage point differences in the probability relative to the predicted probability at the bottom of each column.

A. MARRIAGE MODEL RESULTS

Marriage model results are reported in three tables. Table V.1 shows the results of the baseline models, Table V.2 shows the results of the models estimated on a sample of those who stay, and Table V.3 shows all model results, where females are omitted from the sample.

1. Baseline Models

a. Baseline Model Results

Table V.1 shows the results of two basic and three full baseline models, where the dependent variable is "married." The samples contain both male and female officers. The full model uses the same sample but includes additional explanatory variables on commissioning sources, duties, and early promotion. The first two models analyze marriage during the first 5 years of the officers who entered in 1990. The second two models analyze the marriages in the 7-year period after minimum service requirement (MSR) and include all officers who stayed in service after MSR. The fifth model analyzes all marriages during the entire 12-year period (1990-2001) for all officers commissioned in 1990.

Table V.1. Baseline Marriage Model Results – All Officers

Variable	1990-1994		1995-2001		1990 -2001
	All Officers commissioned in 1990 (Marriages before MSR)		All Officers in service in 1995 (Marriages after MSR)		All Officers (All Marriages)
	Basic	Full	Basic	Full	
Sea	0.049* (0.028) [0.011]	-0.005 (0.030) -[0.001]	0.195*** (0.053) [0.033]	0.105* (0.055) [0.016]	0.024 (0.023) [0.006]
Foreign	-0.418*** (0.094) -[0.084]	-0.286*** (0.097) -[0.062]	0.223** (0.103) [0.034]	0.234** (0.105) [0.038]	-0.038 (0.070) -[0.009]
Female	-0.092 (0.085) -[0.020]	0.194** (0.094) [0.046]	0.274** (0.118) [0.047]	0.416*** (0.132) [0.071]	-0.658*** (0.083) -[0.162]
Black	-0.140 (0.120) -[0.030]	-0.122 (0.123) -[0.028]	-0.366* (0.189) -[0.052]	-0.373* (0.191) -[0.050]	-0.251** (0.109) -[0.060]
Other	-0.184 (0.138) -[0.039]	-0.190 (0.141) -[0.043]	0.222 (0.177) [0.038]	0.279 (0.180) [0.046]	0.032 (0.127) [0.007]
	-0.132**	-0.150**	-0.112	-0.086	0.046

Variable	1990-1994		1995-2001		1990 -2001
	All Officers commissioned in 1990 (Marriages before MSR)		All Officers in service in 1995 (Marriages after MSR)		All Officers (All Marriages)
	Basic	Full	Basic	Full	
Age1	(0.063) -[0.028]	(0.065) -[0.034]	(0.090) -[0.017]	(0.091) -[0.013]	(0.060) [0.011]
Prior	-0.467*** (0.078) -[0.093]	-0.188** (0.084) -[0.042]	-0.656*** (0.116) -[0.084]	-0.441*** (0.125) -[0.057]	0.270*** (0.076) [0.061]
Pg	-	-0.691*** (0.150) -[0.142]	-	0.149 (0.106) [0.023]	0.207*** (0.075) [0.047]
Topsecret	-	-1.805** (0.722) -[0.280]	-	-1.196 (0.728) -[0.120]	0.817** (0.338) [0.164]
Swo	-	0.3205*** (0.1064) [0.0771]	-	0.185 (0.160) [0.029]	0.035 (0.099) [0.008]
Seal	-	0.4222 (0.2974) [0.1024]	-	0.214 (0.409) [0.034]	0.144 (0.290) [0.033]
Sub	-	0.343*** (0.128) [0.082]	-	-0.046 (0.199) -[0.007]	0.097 (0.122) [0.022]
Diver	-	0.644* (0.382) [0.158]	-	-0.113 (0.634) -[0.016]	0.476 (0.371) [0.103]
Pilot	-	0.437*** (0.083) [0.106]	-	0.456*** (0.125) [0.079]	0.244*** (0.079) [0.055]
Surgeon	-	-0.311 (0.334) -[0.069]	-	-0.072 (0.372) -[0.011]	1.114*** (0.269) [0.209]
Emergency	-	0.345 (0.252) [0.083]	-	0.473 (0.335) [0.082]	0.281 (0.206) [0.063]
Legislative	-	0.290* (0.155) [0.070]	-	0.361 (0.263) [0.061]	0.151 (0.144) [0.035]
Intelligence	-	0.009 (0.214) [0.002]	-	0.296 (0.258) [0.049]	-0.105 (0.190) -[0.025]
Personnel	-	-0.205 (0.345) -[0.046]	-	-0.034 (0.257) -[0.005]	0.640*** (0.212) [0.134]
Nucleareng	-	0.171 (0.177) [0.041]	-	-0.207 (0.322) -[0.029]	0.138 (0.161) [0.032]

Variable	1990-1994		1995-2001		1990 -2001
	All Officers commissioned in 1990 (Marriages before MSR)		All Officers in service in 1995 (Marriages after MSR)		All Officers (All Marriages)
	Basic	Full	Basic	Full	
Nrotcscholar	-	-0.331*** (0.090) -[0.073]	-	-0.074 (0.122) -[0.011]	-0.230** (0.092) -[0.055]
Nrotcnonscholar	-	-0.359** (0.173) -[0.080]	-	-0.287 (0.255) -[0.039]	-0.420** (0.165) -[0.102]
Ocs	-	-0.572*** (0.097) -[0.121]	-	-0.412*** (0.138) -[0.054]	-0.398*** (0.095) -[0.097]
Dirapp	-	-0.817*** (0.104) -[0.163]	-	-0.414*** (0.144) -[0.064]	0.209** (0.101) [0.047]
Aviprog	-	-0.204 (0.2490) -[0.046]	-	-0.414 (0.391) -[0.064]	0.343 (0.275) [0.076]
Earlypro	-	N.A.	-	0.348** (0.174) [0.058]	0.854*** (0.171) [0.171]
Intercept	-0.7542	-0.5388	-1.4594	-1.5179	0.4618
N	5915	5915	3899	3899	5915
-2 Log L	6932.753	6692.075	3665.527	3605.952	7480.973
Dep. Mean	0.3255	0.3678	0.1974	0.1843	0.6283

Notes: Each cell includes estimated coefficient, standard error in parenthesis, and marginal effect in brackets
* Indicates significance at .10 level; ** at .05 level; *** at .01 level
N.A. = Not Applicable

b. Analysis of the Baseline Marriage Models (Columns 1 and 3, Table V.1)

SEA: Table V.1 results show that sea duty: (1) does not affect the likelihood of marriage for the entire period; (2) increases the likelihood of late marriages (marriages after MSR) by 1.5–3.5 percentage points; and (3) increases the likelihood of early marriages (marriages before MSR) by 1 percentage point. Only the basic model supports result (3). When additional explanatory variables are included in the full model, the significance of the sea duty variable disappears. Result (2) supports the hypothesis that "sea duty in early years of service cause later marriages among single officers."

FOREIGN: The results show that foreign duty: (1) does not affect the likelihood of marriage of officers for the entire period; (2) increases the likelihood of late marriages by 3.5-4 percentage points; and (3) decreases the likelihood of early marriages

by 6-8.5 percentage points. Foreign duty appears to negatively affect marriages by causing late marriages. Results (2) and (3) support the hypothesis that, "duty overseas will tend to delay marriage for a single officer while increasing the likelihood of divorce for those who are married."

FEMALE: The results show that being female: (1) decreases the likelihood of marriage of officers by 16 percentage points for the entire period; (2) increases the likelihood of late marriage by 5-7 percentage points; and (3) in the full model, increases the likelihood of early marriage by 4.5 percentage points (in the basic model, this effect is insignificant).

Since the results of the basic and full models are the same for the full sample and the sample of stayers, results (1) and (2) indicate that being female negatively affects marriage both by reducing the likelihood of marriages for the entire period, and by increasing late marriages. However, the addition of new variables changes the results for those who stay.

BLACK: Consistent with the literature review, the results show that blacks: (1) have a lower likelihood of getting married by 6 percentage points for the entire period; (2) have lower ratio of late marriages by 6 percentage points; and (3) have an insignificant effect on early marriages.

AGE1: Being younger at entry does not affect the likelihood of getting married, but it affects the marriage period. Being younger at entry: (1) decreases the likelihood of early marriages by 3 percentage points; and (2) has an insignificant effect on late marriages. These results indicate that younger entrants are more likely to be married at entry, or to remain single or to get divorced.

PRIOR: Being prior enlisted: (1) increases the likelihood of marriage by 6 percentage points for the entire period; (2) decreases the likelihood of late marriages by 6-8.5 percentage points; and (3) decreases the likelihood of early marriages by 4-9 percentage points. These results show that being prior enlisted increases the likelihood of getting married. Also prior enlisted officers are more likely to be married at entry.

PG: Acquiring a graduate education after commissioning: (1) increases the likelihood of marriage by 5 percentage points for the entire period; (2) has no effect on late marriage; and (3) reduces the likelihood of early marriage by 14 percentage points.

TOPSECRET: Having a top secret security code: (1) increases the likelihood of getting married by 16 percentage points for the entire period; (2) has no significant effect on late marriage; and (3) decreases the likelihood of early marriage by 28 percentage points. The results show that officers who have top-secret security code are more likely to be married at entry.

SWO: Being a SWO: (1) does not have a significant effect for the entire period; (2) does not have a significant effect on late marriage; and (3) increases early marriage by 7.5 percentage points. SWOs may marry early because they are pessimistic about finding a spouse in the future due to deployments.

SEAL: None of the models show a significant effect of being a Navy SEAL on marriage. Navy SEALs have the same marriage patterns as officers who have less arduous duty.

SUB: Being a submariner: (1) increases the likelihood of marriage by 6 percentage points for the entire period; (2) does not have a significant effect on late marriage; and (3) increases early marriage by 9 percentage points. The results show that submariners are more likely to marry than officers who have less arduous duty, and marriages are more likely occur within the first five years of service.

DIVER: Being a diver: (1) increases the likelihood of early marriages by 16 percentage; (2) does not have a significant effect on late marriages; and (3) does not have an effect on total marriages.

PILOT: Being a pilot: (1) increases the likelihood of marriage by 5.5 percentage points for the entire period; (2) increases the likelihood of late marriage by 8 percentage points; and (3) increases early marriage probability by 10.5 percentage points. The results show that pilots are more likely to marry both within and after MSR than

officers who have less arduous duty. Thus, being a pilot has a positive effect on the marriage decisions of officers.

SURGEON: Being a surgeon: (1) increases the likelihood of marriage by 21 percentage points for the entire period; and (2) has an insignificant effect on the early or late marriages.

LEGISLATIVE: Having a legislative duty: (1) does not have a significant effect on the marriage rates of officers in general; (2) does not have a significant effect on late marriages; but (3) increases the likelihood of early marriages by 7 percentage points.

PERSONNEL: Personnel duty (recruiter, detailer and others): (1) increases the likelihood of marriage by 13.5 percentage points for the entire period; and (2) has no significant effect on early or late marriages. The results indicate that officers who have personnel duties are more likely to be married at entry.

NROTCSCHOLAR: Having an NROTC scholarship (relative to Academy graduates): (1) decreases the likelihood of marriage by 5.5 percentage points for the entire period; (2) does not have a significant effect on late marriage; and (3) decreases the likelihood of early marriage by 7 percentage points.

NROTCNONSCHOLAR: A NROTC non-scholarship graduate: (1) decreases the likelihood of getting married by 10 percentage points for the entire period; (2) has no effect on late marriage; and (3) decreases the likelihood of early marriage by 8 percentage points.

OCS: OCS commissioning source has a negative effect on the likelihood of marriage. The results show that OCS graduates: (1) have a 9.5 percentage points lower marriage probability; (2) 6 percentage points lower late marriage probability; and (3) 4.5 points lower likelihood of early marriage.

DIRAPP: Direct appointment (DA) commissioning source increases the likelihood of marriages of both male and female officers; however, DA decreases the likelihood of early and late marriage, because most of the officers from this commissioning source are married at entry. The results show that direct appointees: (1)

have a higher marriage probability by 5 percentage points for the entire period; (2) a lower late marriage probability by 6.5 percentage points; and (3) a lower early marriage probability by 16 percentage points. The reason a significant portion of officers from direct appointment commissioning source is married at entry can be attributed to the fact that they are relatively older at the time of entry and already have a profession, such as a physician, which provides social and financial support for them to get married.

EARLYPRO: Consistent with the literature review about the positive relationship between being married and on the job performance, officers who promote to O-4 earlier than other officers are more likely to be married. According to the results, getting an early promotion: (1) increases the likelihood of getting married by 17 percentage points for the entire period; and (2) increases the likelihood of late marriages by 6 percentage points. The results show that officers who get an early promotion are more likely to be married than officers who promote to O-4 on time. The tendency for late marriages is an indicator of having a better-planned lifestyle, which makes these officers more successful.

2. Models Analyzing Stayers

Table V.2 shows the results of the basic and full models for a sample of stayers. The samples contain both male and female officers. As in Table V.1, the only difference between basic and full models is the addition of the variables for commissioning sources, duties, and early promotion. The first two models analyze marriage during the first five years (while officers are under MSR). The second two models analyze marriage within the entire period and include only stayers. The comparison of the first two model results of Table V.2 with the first two models of Table V.1 will help in explaining marriage-related separations. On the other hand, the comparison of the second two model results of Table V.2 with the fifth model of Table V.1 will help in explaining marriage-related separations for the entire period.

Table V.2. Marriage Model Results – Stayers Only

Variable	1990-1994 Officers Who Leave at MSR Excluded (Marriages in MSR)		1990-2001 Officers Who Leave at MSR Excluded (All Marriages in 1990-2001)	
	Basic	Full	Basic	Full
Sea	0.013 (0.031) [0.003]	-0.018 (0.033) -[0.004]	-0.128** (0.051) -[0.023]	-0.126** (0.053) -[0.023]
Foreign	-0.616*** (0.104) -[0.130]	-0.465*** (0.108) -[0.104]	-0.223** (0.093) -[0.042]	-0.270*** (0.096) -[0.053]
Female	-0.171* (0.101) -[0.039]	0.115 (0.113) [0.028]	-0.774*** (0.101) -[0.163]	-1.000*** (0.115) -[0.217]
Black	-0.043 (0.136) -[0.010]	-0.056 (0.139) -[0.013]	-0.424*** (0.139) -[0.0830]	-0.457*** (0.144) -[0.090]
Other	-0.096 (0.158) -[0.022]	-0.113 (0.160) -[0.027]	0.389*** (0.189) [0.061]	0.418** (0.192) [0.065]
Age1	-0.146** (0.070) -[0.033]	-0.127* (0.072) -[0.030]	0.017 (0.080) [0.003]	0.048 (0.083) [0.008]
Prior	-0.616*** (0.087) -[0.130]	-0.280*** (0.095) -[0.064]	0.374*** (0.096) [0.059]	0.191* (0.106) [0.032]
Pg	-	0.200 (0.178) [0.049]	-	0.503*** (0.103) [0.076]
Topsecret	-	-1.711** (0.725) -[0.289]	-	0.635 (0.446) [0.092]
Swo	-	0.260** (0.125) [0.063]	-	-0.422*** (0.145) -[0.082]
Seal	-	0.417 (0.312) [0.103]	-	-0.452 (0.349) -[0.089]
Sub	-	0.162 (0.138) [0.039]	-	-0.566*** (0.163) -[0.114]
Diver	-	0.113 (0.471) [0.027]	-	-0.212 (0.495) -[0.039]
Pilot	-	0.419*** (0.098) [0.133]	-	-0.068 (0.117) -[0.014]

Variable	1990-1994		1990-2001	
	Officers Who Leave at MSR Excluded (Marriages in MSR)		Officers Who Leave at MSR Excluded (All Marriages in 1990-2001)	
	Basic	Full	Basic	Full
Surgeon	-	0.279 (0.411) [0.068]	-	0.675* (0.389) [0.097]
Emergency	-	0.266 (0.324) [0.065]	-	-0.076 (0.311) -[0.014]
Legislative	-	0.1880 (0.178) [0.046]	-	-0.296 (0.252) -[0.056]
Intelligence	-	-0.006 (0.236) -[0.001]	-	-0.388 (0.245) -[0.075]
Personnel	-	-0.185 (0.350) -[0.043]	-	0.234 (0.234) [0.038]
Nucleareng	-	0.196 (0.182) [0.048]	-	0.417 (0.300) [0.065]
Nrotcscholar	-	-0.263*** (0.098) -[0.061]	-	0.055 (0.118) [0.010]
Nrotcnonscholar	-	-0.074 (0.202) -[0.017]	-	0.018 (0.239) [0.003]
Ocs	-	-0.467*** (0.105) -[0.104]	-	-0.208* (0.122) -[0.038]
Dirapp	-	-0.885*** (0.117) -[0.182]	-	0.280** (0.135) [0.045]
Aviprog	-	-0.366 (0.302) -[0.083]	-	0.456 0.428 [0.070]
Earlypro	-	N.A.	-	0.511*** (0.188) [0.082]
Intercept	-0.5232	-0.4223	1.2566	1.2651
N	4446	4446	3899	3899
-2 Log L	5389.556	5226.564	4256.343	4150.561
Dep. Mean	0.3738	0.3935	0.7720	0.7736

Notes: Each cell includes estimated coefficient, standard error in parenthesis, and marginal effect in brackets

* Indicates significance at .10 level; ** at .05 level; *** at .01 level

N.A. = Not Applicable

The two focus variables, "foreign" and "sea" duty have the same effects on separation. The results indicate that officers who marry under the effect of sea or foreign duty are more likely to separate, and officers who have sea or foreign duty and continue their service after MSR are less likely to marry than their counterparts who do not have sea or foreign duty. In short, sea or foreign duty increases separation and reduces the likelihood of marriage for officers who stay in the Navy.

Married officers who are minorities are less likely to separate. Officers who acquire a graduate degree within the first five years of their service are less likely to marry during this period and more likely to separate after acquiring the education. Of the 401 officers with the graduate education, 209 separate within MSR. This underlines an important policy issue that graduate education in the early career years increases separation, which means these officers prefer to use their human capital investment (education) in the civilian sector rather than in the military.

In terms of risky and arduous duties, the results show that: (1) married officers who have top-secret security clearance are more likely to separate than their counterparts who are not married; (2) married SWOs are more likely to separate and SWOs who stay in the Navy after MSR are less likely to be married (than their counterparts who have less arduous duty); (3) married submariners are more likely to separate before MSR and submariners who stay in the Navy after MSR are less likely to be married; (4) divers are more likely to make early marriages, but married divers are more likely to separate at MSR than single divers; (5) some of the married pilots separate before MSR; and (6) officers who have legislative duty are more likely to marry within the first five years of their careers, but married officers are more likely to separate before MSR than their single counterparts.

In terms of commissioning sources, both NROTC scholarship and non-scholarship graduates have lower marriage probabilities (relative to Academy graduates), and married officers from NROTC scholarship commissioning source are less likely to separate after MSR, and married officers from NROTC non-scholarship commissioning source are less likely to separate at MSR.

3. Models Analyzing Males Only

Table V.3 shows the results of all models for samples of male officers. The 9 models reported in Table V.3 are the same as the previous 9 models, 5 of them listed in Table V.1 and 4 listed in Table V.2.

Table V.3. All Marriage Model Results -- Female Officers Omitted

Variable	1990-1994				1995-2001		1990 -2001		
	All Officers (Marriages before MSR)		Officers Who Leave at MSR Excluded		Officers in Service in 1995 (Marriages After MSR)		Officers Who Leave at MSR Excluded		All Officers All Marriages
	Basic	Full	Basic	Full	Basic	Full	Basic	Full	
Sea	0.051*	-0.006	0.013	-0.022	0.212***	0.128**	-0.108**	-0.106*	0.035
	(0.029)	(0.031)	(0.032)	(0.034)	(0.054)	(0.057)	(0.052)	(0.055)	(0.024)
	[0.012]	-[0.001]	[0.003]	-[0.005]	[0.036]	[0.020]	-[0.020]	-[0.021]	[0.049]
Foreign	-0.467***	-0.299***	-0.661***	-0.471***	0.337***	0.346***	-0.160	-0.237**	0.018
	(0.107)	(0.111)	(0.118)	(0.124)	(0.111)	(0.113)	(0.105)	(0.108)	(0.079)
	-[0.095]	-[0.067]	-[0.140]	-[0.106]	[0.059]	[0.058]	-[0.030]	-[0.048]	[0.004]
Black	-0.143	-0.113	-0.102	-0.098	-0.484**	-0.488**	-0.418**	-0.484***	-0.205
	(0.138)	(0.142)	(0.156)	(0.160)	(0.229)	(0.231)	(0.164)	(0.169)	(0.128)
	-[0.031]	-[0.026]	-[0.024]	-[0.023]	-[0.066]	-[0.063]	-[0.083]	-[0.103]	-[0.051]
Other	-0.240	-0.260*	-0.179	-0.204	0.178	0.236	0.208	0.242	-0.100
	(0.151)	(0.155)	(0.173)	(0.178)	(0.199)	(0.202)	(0.205)	(0.210)	(0.137)
	-[0.051]	-[0.059]	-[0.041]	-[0.048]	[0.029]	[0.038]	[0.035]	[0.044]	-[0.025]
Age1	-0.177***	-0.180**	-0.178**	-0.138*	-0.144	-0.093	0.033	0.056	0.073
	(0.068)	(0.070)	(0.075)	(0.077)	(0.097)	(0.099)	(0.088)	(0.091)	(0.066)
	-[0.038]	-[0.041]	-[0.041]	-[0.033]	-[0.022]	-[0.014]	[0.006]	[0.011]	[0.018]
Prior	-0.591***	-0.309***	-0.724***	-0.369***	-0.727***	-0.466***	0.419***	0.207*	0.273***
	(0.089)	(0.096)	(0.097)	(0.106)	(0.133)	(0.144)	(0.111)	(0.122)	(0.087)
	-[0.117]	-[0.069]	-[0.152]	-[0.085]	-[0.092]	-[0.060]	[0.066]	[0.038]	[0.065]
Pg	-	-0.790***	-	0.246	-	0.088	-	0.585***	0.207**
		(0.174)		(0.213)		(0.120)		(0.122)	(0.085)
		-[0.161]		[0.060]		[0.014]		[0.097]	[0.049]
Top secret	-	-2.284**	-	-2.199**	-	-0.973	-	0.555	0.660*
		(1.012)		(1.015)		(0.732)		(0.484)	(0.356)
		-[0.318]		-[0.331]		-[0.106]		[0.092]	[0.147]
Swo	-	0.388***	-	0.327**	-	0.255	-	-0.274*	0.211**
		(0.112)		(0.133)		((0.170)		(0.154)	(0.104)
		[0.094]		[0.081]		[0.042]		-[0.056]	[0.050]
Seal	-	0.460	-	0.439	-	0.220	-	-0.323	0.308
		(0.300)		(0.315)		(0.413)		(0.352)	(0.292)
		[0.112]		[0.108]		[0.036]		-[0.068]	[0.072]
Sub	-	0.381***	-	0.186	-	-0.015	-	-0.438***	0.264**
		(0.131)		(0.143)		(0.205)		(0.169)	(0.125)
		[0.093]		[0.045]		-[0.002]		-[0.093]	[0.063]
Diver		0.668*		0.124		-0.124		-0.086	0.560
		(0.384)		(0.473)		(0.637)		(0.496)	(0.372)

Variable	1990-1994				1995-2001		1990 -2001		
	All Officers (Marriages before MSR)		Officers Who Leave at MSR Excluded		Officers in Service in 1995 (Marriages After MSR)		Officers Who Leave at MSR Excluded		All Officers All Marriages
	Basic	Full	Basic	Full	Basic	Full	Basic	Full	
	-	[0.164]	-	[0.030]	-	-[0.018]	-	-[0.017]	[0.135]
Pilot	-	0.495*** (0.088) [0.121]	-	0.475*** (0.105) [0.117]	-	0.435*** (0.136) [0.048]	-	0.036 (0.126) [0.007]	0.380*** (0.084) [0.022]
Surgeon	-	-0.252 (0.336) -[0.057]	-	0.411 (0.414) [0.101]	-	-0.011 (0.398) -[0.002]	-	1.506** (0.602) [0.188]	1.402*** (0.325) [0.268]
Emer-gency	-	-0.143 (0.636) -[0.033]	-	-0.766 (1.055) -[0.163]	-	0.738 (0.583) [0.137]	-	0.512 (0.765) [0.086]	0.398 (0.437) [0.093]
Legis-lative	-	0.400** (0.175) [0.097]	-	0.303 (0.201) [0.074]	-	0.444 (0.294) [0.077]	-	-0.004 (0.310) -[0001]	0.231 (0.169) [0.055]
Intel-ligence	-	0.199 (0.230) [0.048]	-	0.158 (0.256) [0.039]	-	0.478* (0.287) [0.083]	-	-0.257 (0.286) -[0.052]	0.038 (0.214) [0.009]
Person-nel	-	-0.503 (0.474) -[0.109]	-	-0.425 (0.484) -[0.096]	-	-0.234 (0.322) -[0.033]	-	0.099 (0.276) [0.019]	0.510** (0.256) [0.117]
Nuclear engineer	-	0.180 (0.178) [0.043]	-	0.201 (0.183) [0.049]	-	-0.163 (0.323) -[0.023]	-	0.411 (0.302) [0.071]	0.167 (0.161) [0.040]
Nrotc Scholar	-	-0.420*** (0.095) -[0.092]	-	-0.336*** (0.103) -[0.077]	-	-0.055 (0.129) -[0.008]	-	0.085 (0.124) [0.016]	-0.223** (0.097) -[0.055]
Nrotcnon scholar	-	-0.380 (0.177) -[0.084]	-	-0.113 (0.207) -[0.027]	-	-0.308 (0.263) -[0.042]	-	0.067 (0.246) [0.013]	-0.332* (0.170) -[0.082]
Ocs	-	-0.586*** (0.103) -[0.125]	-	-0.485*** (0.111) -[0.109]	-	-0.426*** (0.148) -[0.056]	-	-0.133 (0.130) -[0.026]	-0.332*** (0.101) -[0.082]
Dirapp	-	-0.844*** (0.116) -[0.170]	-	-0.970*** (0.131) -[0.198]	-	-0.468*** (0.162) -[0.061]	-	0.463*** (0.154) [0.079]	0.492*** (0.113) [0.113]
Aviprog	-	-0.491* (0.276) -[0.107]	-	-0.585* (0.322) -[0.129]	-	-0.320 (0.393) -[0.044]	-	0.446 (0.430) [0.077]	0.226 (0.290) [0.054]
Earlypro	-	N.A.	-	N.A.	-	0.259 (0.189) [0.042]	-	0490** (0.204) [0.083]	0.871*** (0.186) [0.187]
Intercept	-0.7139	-0.5039	-0.4829	-0.3903	-1.4616	-1.5220	1.2298	1.0759	0.2315
N	4994	4994	3816	3816	3354	3354	3354	3354	4994

Variable	1990-1994				1995-2001		1990 -2001		
	All Officers (Marriages before MSR)		Officers Who Leave at MSR Excluded		Officers in Service in 1995 (Marriages After MSR)		Officers Who Leave at MSR Excluded		All Officers All Marriages
	Basic	Full	Basic	Full	Basic	Full	Basic	Full	
-2 Log L	5883.285	5647.530	4659.675	4487.416	3104.065	3050.188	3545.589	3438.858	6184.042
Dep. Mean	0.3355	0.3758	0.3834	0.4003	0.1991	0.1855	0.7675	0.7390	0.5826

Notes: Each cell includes estimated coefficient, standard error in parenthesis, and marginal effect in brackets
* Indicates significance at .10 level; ** at .05 level; *** at .01 level
N.A. = Not Applicable

Comparing Table V.3 with Tables V.1 and V.2 helps to explain gender-related differences in marriage patterns. In terms of different races: (1) blacks have a lower likelihood of getting married and this negative effect appears to be stronger for females than for males; and (2) male minority officers are less likely to marry early.

Among the risky and arduous duties: (1) male SWOs are more likely to marry than officers who have less arduous duty; and (2) intelligence duty does not have a significant effect on marriage of females, but increases the likelihood of late marriage for males.

In terms of commissioning sources: (1) females who are NROTC non-scholarship graduate are less likely to have early marriages than Academy graduates, and married female officers from this source are less likely to separate within or at the end of MSR; (2) married male OCS graduates are less likely to separate within or at the end of MSR; and (3) male officers from aviation training program are either more likely to remain single or get divorced before MSR. Finally, females who achieve early promotion to O-4 are more likely to be married after MSR.

B. DIVORCE MODEL RESULTS

Divorce model results are reported in three tables. Table V.4 shows the baseline models, Table V.5 shows the results of the models for stayers, and Table V.6 shows all model results where female officers are omitted.

1. Baseline Models

Table V.4 shows the results of two basic and three full baseline models, where the dependent variable is "divorced". The samples contain both males and females. The first

two models analyze divorce during the first 5 years of the career of officers who entered in 1990. The second two models analyze divorces in the 7-year period after MSR and include only officers who stayed in service after MSR. The fifth model analyzes all divorces during the entire period for all officers commissioned in 1990.

Table V.4. Baseline Divorce Model Results – All Officers

Variable	1990-1994		1995-2001		1990 -2001
	All Officers commissioned in 1990 (Divorces before MSR)		All Officers in service in 1995 (Divorces after MSR)		All Officers (All Divorces)
	Basic	Full	Basic	Full	
Sea	0.097 (0.078) [0.002]	0.096 (0.081) [0.001]	0.141* (0.098) [0.006]	0.232** (0.102) [0.006]	0.121*** (0.044) [0.002]
Foreign	0.349 (0.218) [0.007]	0.260 (0.222) [0.003]	0.380** (0.181) [0.015]	0.421** (0.186) [0.012]	0.459*** (0.133) [0.011]
Female	0.472** (0.027) [0.010]	0.264 (0.226) [0.003]	0.197 (0.219) [0.007]	0.257 (0.243) [0.024]	0.244 (0.174) [0.005]
Black	0.074 (0.309) [0.001]	-0.005 (0.312) -[0.000]	0.045 (0.299) [0.002]	0.098 (0.306) [0.002]	0.112 (0.222) [0.002]
Other	-0.156 (0.394) -[0.002]	-0.145 (0.398) -[0.001]	-0.363 (0.396) -[0.010]	-0.237 (0.401) -[0.005]	-0.136 (0.285) -[0.002]
Age1	0.245 (0.172) [0.005]	0.161 ((0.181) [0.002]	0.138 (0.162) [0.005]	0.027 (0.167) [0.001]	-0.140 (0.126) -[0.003]
Prior	0.398** (0.183) [0.008]	0.101 (0.201) [0.001]	0.074 (0.181) [0.003]	-0.040 (0.202) -[0.001]	0.091 (0.146) [0.002]
Milspouse	0.741*** (0.263) [0.018]	-0.538 (0.374) -[0.004]	0.863*** (0.225) [0.044]	0.039 (0.190) [0.001]	0.173 (0.143) [0.004]
Pg	-	0.801*** (0.271) [0.013]	-	0.903*** (0.233) [0.033]	1.074*** (0.177) [0.035]
Topsecret	-	-0.616 (0.741) -[0.005]	-	-0.253 (0.745) [0.005]	-0.248 (0.535) -[0.004]
Swo	-	0.090 (0.329) [0.001]	-	-0.523 (0.367) -[0.010]	-0.011 (0.239) -[0.000]
Seal	-	-12.516 (532.8)	-	0.707 (0.635)	0.548 (0.615)

Variable	1990-1994		1995-2001		1990 -2001
	All Officers commissioned in 1990 (Divorces before MSR)		All Officers in service in 1995 (Divorces after MSR)		All Officers (All Divorces)
	Basic	Full	Basic	Full	
		-[0.011]		[0.023]	[0.013]
Sub	-	-0.348 (0.466) -[0.003]	-	0.809*** (0.303) [0.028]	0.798*** (0.251) [0.022]
Diver	-	0.290 (1.040) [0.004]	-	0.867 (0.781) [0.031]	0.877 (0.625) [0.025]
Pilot	-	-0.127 (0.249) -[0.001]	-	0.034 (0.236) [0.001]	0.403** (0.168) [0.009]
Surgeon	-	0.172 (0.792) [0.002]	-	-0.847 (1.029) -[0.014]	-0.123 (0.542) -[0.002]
Emergency	-	-0.869 (0.738) -[0.006]	-	0.095 (0.551) [0.002]	0.055 (0.347) [0.001]
Legislative	-	-0.771 (0.593) -[0.006]	-	-0.636 (0.725) -[0.011]	-0.539 (0.126) -[0.008]
Intelligence	-	0.399 (0.534) [0.005]	-	-0.590 (0.626) -[0.011]	-0.028 (0.413) -[0.001]
Personnel	-	0.459 (0.742) [0.006]	-	0.108 (0.438) [0.003]	0.092 (0.379) [0.002]
Nucleareng	-	-1.260 (1.040) -[0.008]	-	-0.562 (0.566) -[0.010]	-0.318 (0.352) -[0.005]
Nrotcscholar	-	0.521 (0.379) [0.007]	-	0.299 (0.273) [0.008]	0.336 (0.223) [0.007]
Nrotcnonscholar	-	0.354 (0.671) [0.041]	-	0.154 (0.562) [0.004]	0.142 (0.431) [0.003]
Ocs	-	0.868** (0.378) [0.014]	-	0.461* (0.271) [0.013]	0.497** (0.222) [0.012]
Dirapp	-	1.349*** (0.373) [0.029]	-	0.490* (0.288) [0.015]	0.921*** (0.227) [0.027]
Aviprog	-	0.738 (0.798) [0.011]	-	0.729 (0.651) [0.024]	0.364 (0.506) [0.008]
				0.552**	0.444*

Variable	1990-1994		1995-2001		1990 -2001
	All Officers commissioned in 1990 (Divorces before MSR)		All Officers in service in 1995 (Divorces after MSR)		All Officers (All Divorces)
	Basic	Full	Basic	Full	
Earlypro	-	N.A.	-	(0.277) [0.017]	(0.238) [0.010]
O2	-	0.180 (0.224) [0.002]	-	0.383* (0.199) [0.011]	0.345* (0.152) [0.008]
O3	-	-0.870*** (0.270) -[0.006]	-	-0.345* (0.209) -[0.007]	-0.446*** (0.168) [0.007]
O4	-	-2.004* (1.027) -[0.009]	-	-0.588 (0.607) -[0.011]	-1.040** (0.524) [0.012]
O5	-	0.348 (0.779) [0.004]	-	0.178 (1.055) [0.005]	0.538 (0.636) [0.013]
O6	-	0.364 (1.082) [0.005]	-	-10.562 (403.5) -[0.024]	0.277 (1.055) [0.006]
Intercept	-4.1015	-4.5764	-3.3670	-3.7796	-3.8948
N	5915	5915	3889	3899	5915
-2 Log L	1376.954	1325.931	1427.301	1386.171	2391.983
Dep. Mean	0.0171	0.0107	0.0349	0.0238	0.0189

Notes: Each cell includes estimated coefficient, standard error in parenthesis, and marginal effect in brackets
* Indicates significance at .10 level; ** at .05 level; *** at .01 level
N.A. = Not Applicable

SEA: Sea duty: (1) increases the likelihood of divorce by 0.2 percentage point for all officers for the entire period; (2) increases the likelihood of late divorce (divorce after five years of service) by 0.6-1.2 percentage point for all officers; and (3) does not have a significant effect on early divorce (within first five years of service-MSR).

Result (1) supports the hypothesis that "married officers who are on sea duty are more likely to divorce." Results (2) and (3) indicate that divorces mostly occur after the first five years of service. This is reasonable because the negative effects of sea duties may cause some damages to families, which may cause spouses to separate (the last stage before divorce). If spouses cannot recover from their problems, they may end up in divorce. The importance of this finding comes from the fact that, since sea duty does not cause immediate divorces, there is enough time for family support services to help families before divorce happens.

FOREIGN: The effects of foreign duty on divorces are similar to the effects of sea duty. Foreign duty: (1) increases the likelihood of divorce by 1 percentage point for all officers for the entire period; (2) increases the likelihood of late divorce by 1.5 percentage point for all officers; and (3) does not have a significant effect on early divorce. The results support the hypothesis that "duty overseas will tend to delay marriage for a single officer while increasing the likelihood of divorce for those who are married." Like sea duty, family support services have time to help officers before the negative effects of foreign duty on marriage cause a divorce.

FEMALE: Full models including duty variables indicate that there is no significant effect of being female on divorces. On the other hand, being female increases the likelihood of early divorce by 1-1.2 percentage point, but does not have a significant effect on late divorce in basic models. The significant effect of being female on divorces is consistent with the literature review.

BLACK/OTHER: Inconsistent with the literature review, none of the models show a significant effect of being black on divorce. Black officers analyzed in this thesis have the same divorce pattern as white officers. Officers who are other race/ethnicity have the same divorce patterns as white officers. Since the officer data used in this thesis represent the characteristics of a recent group of officers (officers commissioned within the last decade), the results suggest that the effects of race/ethnicity on divorce are weakening.

PRIOR: In full models, the effect of being prior enlisted on divorce is insignificant, but basic models show that being prior enlisted increases the likelihood of early divorces by 0.8-1.0 percentage point.

PG: Acquiring a graduate education after commissioning, does affect divorce. However, this result does not completely test the assumption that "long-term education periods may be the first time that families come together for a long period and spouses can find opportunity to recognize and evaluate each other which may cause divorces," because the configuration of the data does not allow testing whether divorces occur during the education period.

SWO: Being SWO does not have a significant effect on total number of divorces and the divorce periods. The results does not support the hypotheses that "married officers who are on sea duty are more likely to divorce"; and that "riskier and more arduous duty has a negative effect on officers and causes a higher rate of divorces than do other types of duty." In spite of all difficulties, being SWO does not increase the likelihood of divorces.

SUB: Being a submariner: (1) increases the likelihood of divorces by 2 percentage points (this is more than twice of the likelihood of divorce of an officer who has a less arduous duty); (2) increases the likelihood of late divorces by 3 percentage points; and (3) does not have a significant effect on early divorces.

The results show that submariners are more likely to divorce than officers who have less arduous duty, and that the divorces are more likely to occur after MSR. The results support the hypotheses that "married officers who are on sea duty are more likely to divorce", and that "riskier and more arduous duty has a negative effect on officers and causes a higher rate of divorces than do other types of duty." The results indicate that the effectiveness of current monetary incentives (like subpay) and family support services for submariners are questionable.

The comparison of the model results for SWOs and submariners underlines many important findings about the effects of riskier and more arduous duties on divorce. Although both SWOs and submariners have long-term deployments, have risky duties, have similar marriage patterns, and receive monetary incentives, only submariners have higher divorce rates. This situation indicates that submariners, relative to SWOs, have some additional difficulties (caused by the physical and tactical constraints of submarines) that increase the likelihood of divorce.

DIVER/TOPSECRET/SEAL/SURGEON/EMERGENCY/LEGISLATIVE/INTELLIGENCE/PERSONNEL/NUCLEARENG/NROTCSCHOLAR/NROTCNONSCHOLAR: None of the models show a significant effect of these attributes on divorces.

PILOT: Being a pilot: (1) increases the likelihood of divorce by 1 percentage point for the entire period; and (2) does not have a significant effect on divorce timing.

OCS: OCS commissioning source increases the likelihood of divorces in all models. OCS commissioning source: (1) increases the likelihood of divorce by 1.2 percentage point for the entire period; (2) increases the likelihood of early divorces by 1.4 percentage point; and (3) increases the likelihood of late divorces by 1.3 percentage point.

DIRAPP: Direct appointment commissioning source: (1) increases the likelihood of divorce by 2.7 percentage points for the entire period; (2) increases the likelihood of early divorces by 2.9 percentage points; and (3) increases the likelihood of late divorces by 1.5 percentage point.

EARLYPRO: An early promotion to O-4: (1) increases the likelihood of getting divorced by 1 percentage point for the entire period; and (2) increases the likelihood of late divorces by 1.7 percentage point. The results show that officers who receive an early promotion are more likely to divorce than officers who promote to O-4 on time, and divorces are more likely to occur after MSR (when the time of promotion gets closer). This situation may be explained by the "greedy institutions" theory. When officers devote themselves completely to their work, the problems within families increase and cause a higher chance of divorce relative to families where an officer spends plenty of effort to get promoted on time.

MILSPOUSE: Having a military spouse significantly increases the likelihood of divorce. (In all models, the effect of this variable is significant at 0.01 level). Having a military spouse: (1) increases the likelihood of divorce 3.5 percentage points for the entire period; (2) increases the likelihood of early divorces by 1.3-1.8 percentage point; and (3) increases the likelihood of late divorces by 3.3-4.4 percentage points.

Having a military spouse increases the likelihood of divorce in all career points and all officer groups, which indicates that there may be problems with the current spouse collocation policy. It also may indicate that family support services cannot effectively help military couples. In addition, the regular income of both military spouses indicates that monetary incentives do not always resolve the problems within families. Instead, the regular income for both spouses, and especially for females may make it easier for spouses to divorce.

O2: Interestingly, officers who marry when O-2 are more likely to divorce than officers who marry when O-1. Marrying when O-2: (1) increases the likelihood of divorces by 0.8 percentage point for the entire period; (2) increases the likelihood of late divorces by 1 percentage point; and (3) does not have a significant effect on early divorces. This result does not support the hypothesis that "officers who marry in the early years of military service are more likely to divorce."

O3: Getting married when O-3 (relative to O-1): (1) decreases the likelihood of divorce 0.7 percentage point for the entire period; (2) decreases the likelihood of early divorces by 0.6 percentage point; and (3) decreases the likelihood of late divorces by 0.7 percentage point. This result supports the hypothesis that "officers who marry in the early years of military service are more likely to divorce."

O4: Getting married when O-4 (relative to O-1): (1) decreases the likelihood of divorce 1.2 percentage point for the entire period; (2) decreases the likelihood of early divorces by 0.9 percentage point; and (3) decreases the likelihood of late divorces by 1 percentage point. This result supports the hypothesis that "officers who marry in the early years of military service are more likely to divorce."

The models show that the variables of diver, topsecret, SEAL, surgeon, emergency, legislative, intelligence, personnel, nuclearеng, nrotcscholar, nrotcnonscholar, and aviprog have no significant effect on divorce.

2. Divorce Models Using Stayers Only

Table V.5 shows the results of one basic and one full model for a sample of stayers for the first five years of service. The samples contain both male and female officers. As will be noticed, there were two more models analyzing marriage-related separations for the entire period in Table V.2. This difference comes from the definitions of the dependent variables. The dependent variable "married" defines an officer who gets married once and stays married throughout his or her career. On the other hand, the dependent variable "divorced" defines an officer who divorces within his or her career. Thus, an officer who marries second time stays in the divorced category.

Table IV.7 shows that, out of the 325 divorced officers, 167 officers marry again. Since officers who get divorced before MSR are more likely to re-marry after MSR,

analyzing divorce-related separations for the entire career period (by using divorces that occur within the first career years) may not be appropriate. Although this does not cause any problem for the marriage models, since officers will still be married after MSR, for divorce models there is a very high risk of bias in analyzing officers who re-marry, instead of divorced ones. Since this risk will be considerably low for a shorter period, only the period before MSR is used to analyze divorce-related separations. The comparison of the model results of Table V.5 with the first two models of Table V.4 will help explain divorce-related separations before MSR.

Table V.5. Divorce Outcomes For Stayers Only

Variable	**1990-1994**	
	Officers Who Separate at MSR Omitted	
	Basic	**Full**
Sea	0.113 (0.079) [0.003]	0.098 (0.082) [0.002]
Foreign	0.246 (0.230) [0.006]	0.089 (0.236) [0.001]
Female	0.472** (0.235) [0.013]	0.222 (0.251) [0.004]
Black	0.096 (0.325) [0.002]	-0.020 (0.329) -[0.000]
Other	-0.609 (0.516) -[0.010]	-0.565 (0.520) -[0.006]
Age1	0.038 (0.187) [0.001]	-0.084 (0.196) -[0.001]
Prior	0.415*** (0.194) [0.011]	0.030 (0.217) [0.000]
Milspouse	0.830*** (0.270) [0.027]	-0.073 (0.385) -[0.001]
Pg	-	0.894*** (0.279) [0.021]
		-0.685

Variable	1990-1994	
	Officers Who Separate at MSR Omitted	
	Basic	Full
Topsecret	-	(0.743) -[0.007]
Swo	-	0.121 (0.348) [0.002]
Seal	-	-12.630 (505.6) -[0.015]
Sub	-	-0.614 (0.479) -[0.007]
Diver	-	0.226 (1.056) [0.004]
Pilot	-	-0.316 (0.272) -[0.004]
Surgeon	-	0.332 (1.104) [0.006]
Emergency	-	-0.609 (0.750) -[0.007]
Legislative	-	-0.567 (0.598) -[0.006]
Intelligence	-	0.105 (0.618) [0.002]
Personnel	-	0.281 (0.749) [0.005]
Nuclearеng	-	-1.311 (1.029) -[0.011]
Nrotcscholar	-	0.712** (0.399) [0.015]
Nrotcnonscholar	-	0.805 (0.684) [0.018]
Ocs	-	1.045*** (0.401) [0.026]

Variable	1990-1994	
	Officers Who Separate at MSR Omitted	
	Basic	Full
Dirapp	-	1.494*** (0.400) [0.048]
Aviprog	-	0.559 (1.079) [0.011]
Earlypro	-	N.A.
O2	-	0.063 (0.235) [0.001]
O3	-	-1.204*** (0.294) -[0.010]
O4	-	-1.950* (1.033) -[0.013]
O5	-	-0.464 (1.097) -[0.005]
O6	-	-13.698 (1250.2) -[0.015]
Intercept	-3.8606	-4.2539
N	4446	4446
-2 Log L	1174.503	1114.206
Dep. Mean	0.0219	0.0148

Notes: Each cell includes estimated coefficient, standard error in parenthesis, and marginal effect in brackets
* Indicates significance at .10 level; ** at .05 level; *** at .01 level
N.A. = Not Applicable

The results show that divorce-related separations are more likely to happen for only one gender instead of affecting all officers. For this reason, all divorce-related separations (except for submariners) will be discussed in the next section, which analyzes gender-related differences. Since female officers are prohibited from serving in submarines, it is assumed that gender does not play a role in divorce-related separations for submariners. The results show that submariners are more likely to divorce after MSR, and if submariners divorce before MSR, they are more likely to separate within the same period.

3. Models Analyzing Males Only

Table V.6 shows the results of all models for samples of male officers. The 7 models reported in Table V.6 are the same as the previous 7 divorce models, 5 of in Table V.4 and 2 in Table V.5.

Table V.6. All Divorce Model Results -- Female Officers Omitted

Variable	1990-1994				1995-2001		1990-2001
	All Officers commissioned in 1990 (Divorces before MSR)		Officers Who Attrite at MSR Excluded (Divorces before MSR)		All Officers in service in 1995 (Divorces after MSR)		All Officers (All Divorces)
	Basic	Full	Basic	Full	Basic	Full	
Sea	0.100 (0.081) [0.002]	0.082 (0.085) [0.001]	0.119 (0.082) [0.003]	0.092 (0.085) [0.001]	0.190* (0.099) [0.007]	0.235** (0.104) [0.007]	0.117*** (0.045) [0.002]
Foreign	0.424 (0.260) [0.008]	0.313 (0.268) [0.003]	0.327 (0.275) [0.008]	0.200 (0.286) [0.003]	0.301 (0.208) [0.012]	0.349 (0.213) [0.011]	0.423*** (0.155) [0.010]
Black	-0.161 (0.427) -[0.002]	-0.319 (0.431) -[0.002]	-0.030 (0.429) -[0.001]	-0.274 (0.436) -[0.003]	-0.078 (0.378) -[0.003]	0.006 (0.381) [0.000]	-0.121 (0.289) -[0.002]
Other	0.129 (0.399) [0.002]	0.085 (0.406) [0.001]	-0.268 (0.520) -[0.005]	-0.261 (0.527) -[0.003]	-0.218 (0.427) -[0.007]	-0.038 (0.434) -[0.001]	0.064 (0.299) [0.001]
Age1	0.348* (0.195) [0.006]	0.162 (0.204) [0.001]	0.106 (0.209) [0.002]	-0.107 (0.219) -[0.001]	0.204 (0.177) [0.008]	0.072 (0.183) [0.002]	-0.164 (0.139) -[0.003]
Prior	0.456** (0.214) [0.009]	0.147 (0.243) [0.005]	0.508** (0.222) [0.013]	0.125 ((0.258) [0.002]	0.122 (0.204) [0.004]	0.129 (0.232) [0.004]	0.242 (0.171) [0.005]
Milspouse	1.072*** (0.362) [0.029]	-0.829 (0.520) -[0.004]	1.069*** (0.365) [0.036]	-0.177 (0.534) -[0.002]	0.855*** (0.296) [0.043]	0.093 (0.219) [0.003]	0.191 (0.166) [0.004]
Pg	-	1.094*** (0.373) [0.014]	-	1.098*** (0.377) [0.024]	-	0.905*** (0.304) [0.038]	1.270*** (0.228) [0.044]
Topsecret	-	-0.510 (0.750) -[0.003]	-	-0.566 (0.752) -[0.005]	-	-0.826 (1.032) -[0.015]	-0.419 (0.614) -[0.006]
Swo	-	0.075 (0.347) [0.001]	-	-0.017 (0.370) -[0.000]	-	-0.648* (0.393) -[0.013]	-0.043 (0.254) -[0.001]
Seal	-	-12.591 (546.3) -[0.007]	-	-13.862 (860.2) -[0.012]	-	0.654 (0.641) [0.024]	0.532 (0.618) [0.013]
Sub	-	-0.451 (0.473)	-	-0.861* (0.486)	-	0.759** (0.317)	0.773*** (0.259)

Variable	1990-1994				1995-2001		1990-2001
	All Officers commissioned in 1990 (Divorces before MSR)		Officers Who Attrite at MSR Excluded (Divorces before MSR)		All Officers in service in 1995 (Divorces after MSR)		All Officers (All Divorces)
	Basic	Full	Basic	Full	Basic	Full	
		-[0.003]		-[0.007]		[0.030]	[0.021]
Diver	-	0.161 (1.045) [0.001]	-	-0.016 (1.063) -[0.000]	-	0.887 (0.786) [0.037]	0.880 (0.629) [0.0250]
Pilot	-	-0.206 (0.268) -[0.001]	-	-0.515* (0.296) -[0.005]	-	0.081 (0.255) [0.002]	0.448** (0.181) [0.010]
Surgeon	-	0.236 (0.833) [0.002]	-	0.492 (1.190) [0.008]	-	-13.563 (631.0) -[0.028]	-0.278 (0.634) -[0.004]
Emergency	-	-13.136 (897.7) -[0.007]	-	-14.230 (1926.9) -[0.012]	-	0.277 (1.064) [0.009]	0.190 (0.761) [0.004]
Legislative	-	-0.718 (0.728) -[0.004]	-	-0.432 (0.734) -[0.004]	-	-1.084 (1.017) [0.0018]	-0.625 (0.428) -[0.009]
Intelligence	-	0.581 (0.541) [0.006]	-	0.188 (0.628) [0.003]	-	-0.314 (0.641) -[0.005]	0.218 (0.422) [0.004]
Personnel	-	0.570 (1.039) [0.005]	-	0.546 (1.044) [0.009]	-	-0.133 (0.602) -[0.003]	-0.135 (0.523) -[0.002]
Nuclearenng	-	-1.304 (1.029) -[0.005]	-	-1.409 (1.028) -[0.009]	-	-0.565 (0.569) -[0.028]	-0.307 (0.353) -[0.005]
Nrotcscholar	-	1.124** (0.499) [0.014]	-	1.189** (0.504) [0.027]	-	0.276 (0.281) [0.009]	0.472* (0.241) [0.011]
Nrotcnonscholar	-	0.929 (0.746) [0.011]	-	1.276* (0.750) [0.030]	-	0.129 (0.564) [0.004]	0.253 (0.440) [0.005]
Ocs	-	1.466*** (0.502) [0.023]	-	1.565*** (0.508) [0.044]	-	0.260 (0.286) [0.008]	0.494** (0.245) [0.012]
Dirapp	-	1.766*** (0.512) [0.033]	-	1.602*** (0.529) [0.046]	-	0.178 (0.323) [0.005]	0.847*** (0.261) [0.024]
Aviprog	-	1.511* (0.869) [0.024]	-	1.127 (1.129) [0.025]	-	0.573 (0.655) [0.020]	0.572 (0.519) [0.014]
Earlypro	-	N.A.	-	N.A.	-	0.599** (0.291) [0.022]	0.459* (0.251) [0.010]
O2	-	0.095 (0.270)	-	-0.043 (0.280)	-	0.156 (0.230)	0.210 (0.177)

Variable	1990-1994				1995-2001		1990-2001
	All Officers commissioned in 1990 (Divorces before MSR)		Officers Who Attrite at MSR Excluded (Divorces before MSR)		All Officers in service in 1995 (Divorces after MSR)		All Officers (All Divorces)
	Basic	Full	Basic	Full	Basic	Full	
		[0.001]		-[0.001]		[0.005]	[0.004]
O3	-	-1.301*** (0.368) -[0.005]	-	-1.665*** (0.411) -[0.010]	-	-0.295 (0.230) -[0.007]	-0.522*** (0.195) -[0.007]
O4	-	-1.796* (1.046) -[0.006]	-	-1.732 (1.059) -[0.010]	-	-0.577 (0.738) -[0.012]	-0.965 (0.606) -[0.011]
O5	-	0.457 (0.810) [0.004]	-	-0.336 (1.169) -[0.004]	-	0.686 (1.060) [0.026]	0.753 (0.644) [0.020]
O6	-	0.317 (1.091) [0.003]	-	-14.906 (2225.5) -[0.012]	-	-13.563 (631.0) -[0.028]	0.321 (1.060) [0.007]
Intercept	-4.2001	-4.9986	-3.9559	-4.44655	-3.3949	-3.6357	-3.9051
N	4994	4994	3816	3816	3354	3354	4994
-2 Log L	1052.332	999.109	916.495	856.847	1169.020	1131.665	1897.382
Dep. Mean	0.0157	0.0070	0.0202	0.0123	0.0345	0.0277	0.0184

Notes: Each cell includes estimated coefficient, standard error in parenthesis, and marginal effect in brackets
* Indicates significance at .10 level; ** at .05 level; *** at .01 level
N.A. = Not Applicable

The results show that: (1) foreign duty causes divorce mostly after MSR for female officers, but there is no specific divorce period for male officers; (2) males who are younger at entry are more likely to divorce; (3) also, the ones who get divorced because of the effects of being younger at entry are more likely to separate within the same period; (4) in spite of all difficulties, being SWO does not increase the likelihood of divorces; (5) divorced male pilots are more likely to separate before MSR than single male pilots; and (6) females who marry when O-2 are more likely to divorce than females who marry when O-1.

In terms of commissioning sources: (1) males who have NROTC scholarship are more likely to divorce than Academy graduates; (2) divorced females who have NROTC scholarship and divorced male officers who are NROTC non-scholarship graduate are less likely to separate at MSR; (3) for OCS graduates, divorce occurs both before and after MSR for females, but occurs more likely within MSR for males; and (4) for direct

appointments, divorces occur both before and after MSR for females and occur more likely at MSR for males.

C. CHAPTER SUMMARY

This section provides an overview of the model results. In this section, two tables -- one for marriage and one for divorce models -- summarize the marginal effects of the statistically significant variables. After the tables, the effects of the variables are reported very briefly. In the last part, the results for the samples of stayers are reported.

1. Marriage Models

Table V.7 summarizes the marginal effects of the statistically significant variables for the marriage models. Each column represents one model and each row represents one variable. The predicted probability of marriage for each model is reported at the bottom of each column. In each cell, the number above shows the marginal effect of the variables for models including both men and women, and the number below shows the marginal effect of the variables for models including only men.

Table V.7. Marginal Effects of the Significant Variables – Marriage Models

Variable	1990-1994				1995-2001				1990 - 2001
	All Officers		Officers Who Separate at MSR Excluded		Only After MSR Marriages		All Marriages Included		All Officers
	Basic	Full	Basic	Full	Basic	Full	Basic	Full	
Sea	[0.011] [0.012]	- -	- -	- -	[0.033] [0.036]	[0.016] [0.020]	-[0.023] -[0.020]	-[0.023] -[0.021]	- -
Foreign	-[0.084] -[0.095]	-[0.062] -[0.067]	-[0.130] -[0.140]	-[0.104] -[0.106]	[0.034] [0.059]	[0.038] [0.058]	-[0.042] -	-[0.053] -[0.048]	- -
Female	- -	[0.046] -	-[0.039] -	- -	[0.047] -	[0.071] -	-[0.163] -	-[0.217] -	-[0.162] -
Black	- -	- -[0.026]	- -[0.024]	- -[0.023]	-[0.052] -[0.066]	-[0.050] -[0.063]	-[0.083] -[0.083]	-[0.090] -[0.103]	-[0.060] -
Other	- -	- -[0.059]	- -	- -	- -	- -	[0.061] -	[0.065] -	- -
Age1	-[0.028] -[0.038]	-[0.034] -[0.041]	-[0.033] -[0.041]	-[0.030] -[0.033]	- -	- -	- -	- -	- -
Prior	-[0.093] -[0.117]	-[0.042] -[0.069]	-[0.130] -[0.152]	-[0.064] -[0.085]	-[0.084] -[0.092]	-[0.057] -[0.060]	[0.059] [0.066]	[0.032] [0.038]	[0.061] [0.065]
Pg	- -	-[0.142] -[0.161]	- -	- [0.060]	- -	- -	- -	[0.076] [0.097]	[0.047] [0.049]
Top secret	- -	-[0.280] -[0.318]	- -	-[0.289] -[0.331]	- -	- -	- -	- [0.092]	[0.164] [0.147]

Variable	1990-1994				1995-2001				1990 - 2001
	All Officers		Officers Who Separate at MSR Excluded		Only After MSR Marriages		All Marriages Included		All Officers
	Basic	Full	Basic	Full	Basic	Full	Basic	Full	
Swo	-	[0.077]	-	[0.063]	-	-	-	-[0.082]	-
	-	[0.094]	-	[0.081]	-	-	-	-[0.056]	[0.050]
Sub	-	[0.082]	-	-	-	-	-	-[0.114]	-
	-	[0.093]	-	[0.045]	-	-	-	-[0.093]	[0.063]
Diver	-	[0.158]	-	-	-		-	-	-
	-	[0.164]	-	[0.030]	-		-	-[0.017]	[0.135]
Pilot	-	[0.106]	-	[0.133]	-	[0.079]	-	-	[0.055]
	-	[0.121]	-	[0.117]	-	[0.048]	-	[0.007]	[0.022]
Surgeon	-	-	-	-	-	-	-	[0.097]	[0.209]
	-	-	-	-	-	-	-	[0.188]	[0.268]
Legis-lative	-	[0.070]	-	-	-	-	-	-	-
	-	[0.097]	-	-	-	-	-	-	-
Intel-ligence	-	-	-	-	-	-	-	-	-
	-	-	-	-	-	[0.083]	-	-	-
Person-nel	-	-	-	-	-	-	-	-	[0.134]
	-	-	-	-	-	-	-	-	[0.117]
Nrotc Scholar	-	-[0.073]	-	-[0.061]	-	-	-	-	-[0.055]
	-	-[0.092]	-	-[0.077]	-	-	-	-	-[0.055]
Nrotcnon scholar	-	-[0.080]	-	-	-	-	-	-	-[0.102]
	-	-	-	-	-	-	-	-	-[0.082]
Ocs	-	-[0.121]	-	-[0.104]	-	-[0.054]	-	-[0.038]	-[0.097]
	-	-[0.125]	-	-[0.109]	-	-[0.056]	-	-	-[0.082]
Dirapp	-	-[0.163]	-	-[0.182]	-	-[0.064]	-	[0.045]	[0.047]
	-	-[0.170]	-	-[0.198]	-	-[0.061]	-	[0.079]	[0.113]
Aviprog	-	-	-	-	-	-	-	-	-
	-	-[0.107]	-	-[0.129]	-	-	-	-	-
Earlypro	-	-	-	-	-	[0.058]	-	[0.082]	[0.171]
	-	-	-	-	-	-	-	[0.083]	[0.187]
Dep. Mean	0.326	0.368	0.374	0.394	0.197	0.184	0.772	0.774	0.628
	0.336	0.376	0.383	0.400	0.199	0.186	0.768	0.739	0.583

Sea duty, foreign duty, being black, an NROTC scholarship, an NROTC non-scholarship, an OCS graduate, a submariner or surface warfare officer (stayers), reduces the likelihood of marrying. Being prior enlisted, adding a graduate degree, having a top-secret security clearance, being a pilot or surgeon, having personnel duties, having a direct appointment, or receiving an early promotion to O-4 increases the likelihood of marriage. Besides these variables that affect both male and female officers similarly,

being a female officer decreases; being a male surface warfare officer, or of a race other than white and black (females) increases the likelihood of marriage.

Prior enlisted, officers who hold a top-secret security clearance, and officers from a direct appointment commissioning source are more likely to be married when entering the Navy. Sea duty, foreign duty, being female or a pilot increases, and being black, being prior enlisted, being from OCS or a direct appointment source decreases the likelihood of late marriage. On the other hand, sea duty, being a surface warfare officer, submariner, diver or pilot, or having legislative duties increases the likelihood of early marriage, and foreign duty, being less than 22 at entry, being prior enlisted, adding a graduate degree, having a top-secret security clearance, or having an NROTC scholarship, OCS, or a direct appointment commissioning source decreases the likelihood of early marriage.

2. Divorce Models

Table V.8 summarizes the marginal effects of the statistically significant variables in the divorce models. Each column represents one model and each row represents one variable. The predicted probability of divorce for each model is reported at the bottom of each column. In each cell, the number above shows the marginal effect of the variables for models including both males and females, and the number below shows the marginal effect of the variables for models including only males.

Table V.8. Marginal Effects of the Significant Variables – Divorce Models

Variable	1990-1994				1995-2001		1990-2001
	All Officers		Officers Who Separate at MSR Excluded		Only Divorces After MSR		All Officers
	Basic	Full	Basic	Full	Basic	Full	
	-	-	-	-	[0.006]	[0.006]	[0.002]
Sea	-	-	-	-	[0.007]	[0.007]	[0.002]
	-	-	-	-	[0.015]	[0.012]	[0.011]
Foreign	-	-	-	-	-	-	[0.010]
	[0.010]	-	[0.013]	-	-	-	-
Female	-	-	-	-	-	-	-
	-	-	-	-	-	-	-
Age1	[0.006]	-	-	-	-	-	-
	[0.008]	-	[0.011]	-	-	-	-
Prior	[0.009]	-	[0.013]	-	-	-	-
	[0.018]	-	[0.027]	-	[0.044]	-	-
Milspouse	[0.029]	-	[0.036]	-	[0.043]	-	-
	-	[0.013]	-	[0.021]	-	[0.033]	[0.035]
Pg	-	[0.014]	-	[0.024]	-	[0.038]	[0.044]
	-	-	-	-	-	-	
Swo	-	-	-	-	-	-[0.013]	
	-	-	-	-	-	[0.028]	[0.022]
Sub	-	-	-	-[0.007]	-	[0.030]	[0.021]
	-	-	-	-	-	-	[0.009]
Pilot	-	-	-	-[0.005]	-	-	[0.010]
	-	-	-	[0.015]	-	-	-
Nrotcscholar	-	[0.014]	-	[0.027]	-	-	[0.011]
	-	-	-	-	-	-	-
Nrotcnonscholar	-	-	-	[0.030]	-	-	-
	-	[0.014]	-	[0.026]	-	[0.013]	[0.012]
Ocs	-	[0.023]	-	[0.044]	-	-	[0.012]
	-	[0.029]	-	[0.048]	-	[0.015]	[0.027]
Dirapp	-	[0.033]	-	[0.046]	-	-	[0.024]
	-	-	-	-	-	-	-
Aviprog	-	[0.024]	-	[0.025]	-	-	-
	-	-	-	-	-	[0.017]	[0.010]
Earlypro	-	-	-	-	-	[0.022]	[0.010]
	-	-	-	-	-	[0.011]	[0.008]
O2	-	-	-	-	-	-	-
	-	-[0.006]	-	-[0.010]	-	-[0.007]	[0.007]
O3	-	-[0.005]	-	-[0.010]	-	-	-[0.007]

Variable	1990-1994				1995-2001		1990-2001
	All Officers		Officers Who Separate at MSR Excluded		Only Divorces After MSR		All Officers
	Basic	Full	Basic	Full	Basic	Full	
	-	-[0.009]	-	-[0.013]	-	-	[0.012]
O4	-	-[0.006]	-	-	-	-	-
Predicted Mean	0.017	0.011	0.022	0.015	0.035	0.024	0.019
	0.016	0.007	0.020	0.012	0.035	0.023	0.018

Sea duty, foreign duty, having a military spouse, being a pilot, entering from OCS or via a direct appointment, or obtaining an early promotion to O-4, marrying when an O-2 (females only) increases, and marrying when an O-3 or O-4 decreases the likelihood of divorce.

In terms of divorce timing, sea duty, having a military spouse, obtaining an early promotion to O-4, or being a submariner increases the likelihood of late divorce. Being female or prior enlisted, having a military spouse, having an NROTC scholarship, OCS, or a direct appointment increases, and being a submariner or a male pilot, or marrying when O-3 or O-4 decreases the likelihood of early divorce.

3. Results For Stayers

The comparison of the models shows that the following officer groups are more likely to separate than their counterparts:

- Married officers on sea duty or foreign duty
- Single officers who have an additional graduate degree within the first five years of service (attrite within the same period)
- Married officers who have top-secret security clearances
- Married surface warfare officers (generally at the fifth year of service)
- Married submariners (within the first five years of duty)
- Married divers (within the first five years of service)
- Married pilots (generally at the fifth year of service)
- Married officers who have legislative duty (within the first five years of service)
- Single officers who are from a NROTC scholarship or a non-scholarship commissioning sources

- Single or divorced males who are from OCS
- Divorced officers who were less than 22 years old when entering the Navy (within the first five years of service)
- Submariners who divorced within the first five years of duty

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VI. SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

A. SUMMARY

This thesis examines the effects of military assignments and duties on the marriage and divorce decisions of Navy officers. The data for this study contain information on U.S. Navy officers who were commissioned in 1990. The data were provided by the Defense Manpower Data Center (DMDC). The year 1990 was chosen because of the need for more recent data due to rapidly changing marital trends. In addition, the career length needed to be sufficiently long enough to analyze career milestones.

Since the dependent variables are binary--married versus not married, divorced versus not divorced--logit multivariate models were estimated. Sixteen models were developed, and each differs slightly in terms of career periods and the number of explanatory variables. These 16 models were estimated twice, one with and one without female officers, yielding 32 total regressions.

Three types of models are used when referring to career periods. The first analyzes the first five years of an officer's career (1990-1994), and encompasses the initial service obligation; the second analyzes the six years after the minimum service requirement or MSR (1995-2001); and the third analyzes the entire period. The first period (1990-1994) contains "early marriages and divorces," and the second period indicates "late marriages and divorces." Two samples are analyzed: the first analyzes all officers, and the second analyzes only officers who stay post-MSR. Two model specifications are used. The first specification is the basic model, which analyzes the effects of sea and foreign duties, gender, race, entry age, being prior enlisted, and having a military spouse (for divorce models). The second, the full model, adds the effects of riskier and more arduous duties, commissioning sources, early promotion to pay grade O-4, and rank when getting married (for divorce models).

According to the marriage models, the duties of a Navy SEAL, an onboard nuclear engineer, or an emergency care nurse do not significantly affect marriage decisions. Sea duty, foreign duty, being black, being female, a Navy ROTC (NROTC)

scholarship, an NROTC non-scholarship, being a graduate of Officer Candidate School (OCS), a submariner or surface warfare officer (for those who do not leave at minimum service requirement (MSR)) reduce the likelihood of marrying. Being prior enlisted, having a graduate degree, being a pilot or surgeon, having a direct appointment, and receiving an early promotion to O-4 increase the likelihood of marriage.

In terms of marriage timing, officers with prior enlisted service, officers who have a top-secret security clearance, and officers commissioned by a direct appointment are more likely to be married when entering the Navy. Sea duty, foreign duty, being female, and being a pilot increase the likelihood of a late marriage (i.e., after five years of service). Being black, having prior enlisted service, and being commissioned through OCS or by direct appointment decrease the likelihood of a late marriage. On the other hand, sea duty, being female, a surface warfare officer, submariner, diver, or pilot increase the likelihood of an early marriage (i.e., within the first five years of service). Foreign duty, being younger at entry, being prior enlisted, having a graduate degree, and being commissioned through NROTC or OCS, or by direct appointment decrease the likelihood of an early marriage.

According to the divorce models, the duties of a Navy SEAL, divers, onboard nuclear engineers, surgeons, emergency care nurses and having a graduate degree do not significantly affect divorce. Sea duty, foreign duty, having a military spouse, being a submariner or pilot, being commissioned through OCS or by direct appointment, and obtaining an early promotion to O-4 increase the likelihood of divorce. At the same time, marrying when an O-3 or O-4 decreases the likelihood of later divorce.

In terms of divorce timing, sea duty, foreign duty (females only), being a submariner, having a military spouse, and obtaining an early promotion to O-4 increase the likelihood of late divorce (i.e., divorce after the first five years of service). On the other hand, being female, having prior enlisted service, receiving a commission through NROTC or OCS or by direct appointment, and having a military spouse increase the likelihood of early divorce (i.e., divorce within the first five years of service). Marrying when O-3 or O-4 decreases the likelihood of an early divorce.

B. CONCLUSIONS

The results show that some variables do not have a significant effect on marriage or the divorce decisions of Navy officers in general. Nevertheless, these variables may affect certain groups of officers at specific periods. In addition, although the purpose of this study is not to analyze the reasons why officers leave the Navy, the methodology helped to reveal certain relationships between separation from service and the marital status of officers.

A comparison of the results from the models shows that the following officer groups are more likely to leave the Navy than their counterparts:

- Married officers on sea duty or foreign duty
- Single officers who acquire a graduate degree within the first five years of service (tend to leave within the same period)
- Married officers who have top-secret security clearances
- Married surface warfare officers (generally leave at the fifth year of service)
- Married submariners (tend to leave within the first five years of duty)
- Married divers (tend to leave within the first five years of service)
- Married pilots (generally leave at the fifth year of service)
- Single officers who had an NROTC scholarship or an NROTC non-scholarship
- Single or divorced men who were commissioned through OCS
- Divorced officers who were less than 22 years old when they entered the Navy (tend to leave within the first five years of service)
- Submariners who divorced within the first five years of duty

The results of the models highlight various important issues. The factors that reduce the likelihood of marriage and those that increase the likelihood of divorce should be the main concerns of policy makers. At the same time, some factors that affect marriage and divorce also have an indirect effect on the decisions of Navy officers to leave service.

The major findings of this study are discussed below.

1. Comparison of Submarine and Surface Warfare Officers

Comparing surface warfare officers (SWOs) and submariners yields some important findings about the effects of duties and assignments on the marital status of Naval officers. Although these two duties have many common characteristics, their effects on divorce are different. Being a submariner increases the likelihood of a divorce, and generally causes late divorces, while being a SWO does not increase the likelihood of a divorce, and even decreases the likelihood of late divorces for men. Both SWOs and submariners are more likely to marry within the first five years of service. Although SWOs and submariners both marry early, the results suggest that SWO marriages are much healthier than the marriages of submariners. This may relate to the observation that submariners are more pessimistic, or have fewer opportunities than surface warfare officers, about finding a suitable spouse.

Since these two groups deploy frequently, the finding that submariners are more likely to divorce suggests that deployment itself may not be a leading cause of divorce. When deployment is combined with other factors the chances of divorce are increased. Some of the additional difficulties associated with being a submariner relative to being a SWO are as follows: submariners cannot communicate with their families as much as SWOs because of physical constraints (deep diving or tactical constraints); submariners cannot have as many port visits as SWOs (and they cannot relax as much during deployments); submariners cannot always have fresh air/fresh food, and the environment is hygienically disadvantageous; diving often causes personnel to confuse the day/night cycle and thus lose the regular rhythm of sleep and work; submariners are exposed to limited sunshine (D vitamin); and submariners risk their lives more often due to the sensitivity of the technical problems while diving. In addition, the results suggest that the current monetary incentives (accession pay, subpay, continuation pay, or annual incentive pay) for submariners are not likely to compensate for the difficulties caused by this duty. This view is also supported by other studies. Nakada, Mackin and Mackie (1996), for example, studied the effects of monetary incentives on retention decisions of nuclear officers, and found that submariners are less affected by monetary incentives than are

SWOs.[92] Intrinsic rewards may be far more important. This may help to explain why submariners are less responsive to increases in monetary retention incentives.

2. The Timing of Divorce

One of the important findings of this study concerns the timing of divorce. Instead of divorcing immediately, divorces influenced by sea duty or being a submariner mostly occur after the first five years of service. This underscores the fact that there is enough time and opportunity for family support services to help families by providing different programs to resolve problems before divorce occurs. On the other hand, the factors that influence more immediate divorce, such as being younger than others upon entering the Navy and marrying relatively early, should be recognized, and any associated problems should be treated differently and more aggressively by family support services.

3. Making Generalizations in Analyses

Although the occupations selected for the models are considered more risky and arduous than others, the results do not always come out as expected. For example, certain occupations, such as pilots, surgeons, and personnel specialists, actually increase the likelihood of marriage. Consequently, making predictions about occupations is difficult, and it may be necessary to analyze each occupation separately.

Having a military spouse increases the likelihood of divorce in all career points and all officer groups. This suggests that problems may exist with the current spouse collocation policy. It may also imply that family support services cannot effectively help military couples. In addition, the regular income of both military spouses suggests that monetary incentives do not always resolve the problems within families. Instead, the regular income for both spouses, and especially for women, may actually make it easier for spouses to divorce.

Another important finding concerns the on-the-job performance and marital status of officers. Previous studies have looked at the effects of marital status on performance, but the present study analyzed the opposite: the effects of performance on marital status. Consistent with previous studies, a significant relationship was found between being

[92] Nakada, Michael K., Mackin, Patrick C., Mackie, Christopher D., "Nuclear Officer Retention: MSR and Beyond", Navy Personnel Research and Development Center, 1996.

married and obtaining an early promotion. However, working harder also increases the likelihood of divorce. Ambitious officers either have to select a spouse who is very understanding or as ambitious as themselves, or they have to make a choice between their career and their family.

The results regarding prior enlisted service suggest that military experience reduces the likelihood of divorce. According to the results, officers with prior service are more likely to be married at commissioning. In addition, those who are single are less likely to marry within the first five years of duty, but are more likely to divorce within the same period. The effects of being prior enlisted on divorce are insignificant after the first five years. These results show that prior enlisted officers are more likely to divorce if they are married at entry and less likely to divorce if they marry after becoming an officer. This may suggest that either additional military experience helps these officers select a more suitable spouse for a military family, or maturity or life experience promotes greater stability in marriage.

Another important finding relates to long-term education within the first five years of service. Officers who acquire graduate degrees are more likely to stay single and leave the Navy within the same five-year period after obtaining the degree.

Significant differences are found in the effects of various commissioning sources on marital status. The higher likelihood of divorce, lower likelihood of marriage, and higher likelihood of separation in other commissioning sources relative to Naval Academy graduates suggests that Academy graduates have "healthier" marriages. The reasons may relate more directly be marrying relatively late (because of restrictions on marriage when receiving an Academy education), or better and longer preparation for military life.

Many personal factors are found to affect the marital status of Naval officers. Personality, the effect of relatives, money, environment, and "luck" are some of the factors that may explain why all submariners do not divorce in spite of all the difficulties discussed in this particular duty, or why many more officers who have less risky and arduous duty are not married. However, the results suggest that military duties and assignments also affect marital status. Instead of general policies for the well-being of

officers, the negative effects of these duties and assignments may be reduced only by specific policies that recognize the difficulties of each single duty.

C. RECOMMENDATIONS

1. Recommendations for Policy Makers

Similar studies should be conducted for the other services. Examining duties and assignments that are unique to each military branch would help policy makers determine which specific group of military personnel are the most affected and what specific programs may alleviate the problems. Policy makers can then concentrate financial and manpower resources on the personnel groups with the greatest problems and develop more effective policies.

In addition, further research should be conducted on current collocation policies. In this study, military couples seem to have the greatest difficulty in preserving their marriage. Besides modifications of the collocation policy, some additional improvements, such as special childcare programs in times of deployments, and providing unconditional holiday and leave periods for both spouses at the same time, may help alleviate the apparent stress on marriage experienced by military couples.

For officers on sea duty, and especially for submariners, incentives that would help to reduce on-the-job stress, and make it possible to spend quality time with families, such as longer holidays with family members during port visits, or more relaxed and flexible working conditions during nondeployment periods, may help to promote stronger spousal and family relationships.

Since one of the major concerns of policy makers is to increase the retention of military officers, the effects of marital status on separation should also be taken into account. Making assignments based on marital status to decrease the likelihood of separation may result in perceptions of inequity or other problems. However, careful screening of these groups, when possible, such as screening at accession or screening for foreign duty, may help to prevent some separations caused by family-related problems.

A final recommendation concerns the active participation of military personnel from different occupations in family support programs. Although personnel working in family support services are considered experts in solving family-related problems, it is

possible that they approach the problems of each occupation in the same manner. According to the findings of this study, however, each occupation has unique characteristics, and job-related problems may be better diagnosed when personnel from the same occupation group, such as pilots, submariners, and so forth, are also included in family support services.

2. Recommendations for Future Research

This study is important because of its emphasis, for the first time, on the effects of different duties and assignments on the marital status of Navy officers. On the other hand, it is limited to Navy officers only. Statistics on the marital status of Navy enlisted personnel show that they tend to have lower marriage rates and higher divorce rates than Naval officers. In terms of the armed forces, as shown in Table III.6, marriage rates of Marine Corps personnel are lower, and the divorce rates of Army and Air Force personnel are higher, than those of Navy personnel. The present study suggests that military duties and assignments significantly affect marital status. The effects of duties on the marital status of officer and enlisted personnel from each branch of the military should be analyzed separately.

Another recommendation relates to the selection of personnel cohorts in future studies. Since marital status trends are changing rapidly within both the U.S. civilian population and the U.S. Armed Forces, personnel cohorts should be selected in such a way that they should be recent enough to represent current marital status trends, but at the same time, old enough to allow for the analysis of different career points.

Since the data for this study did not include cohabitation, marital separation, being widowed, and being a single parent, these important and possibly more problematic areas, could not be analyzed. Analyzing these issues in future studies may help to better understand the transition periods between single, married, and divorced personnel.

One limitation of this study concerns the accuracy of some data. Due to the structure of the data and missing information, some assumptions had to be made. For example, since the exact deploying units were not known, all officers who were assigned to ships were assumed to be deployed, without, in fact, knowing whether the units were active or in a maintenance period. In addition, because of data problems, an important

variable, the number of dependents, could not be used in divorce models. Future studies should include the number of dependents, marriage age, the exact duty at the time personnel marry or divorce, and how long the spouses are acquainted before marrying.

As previously observed, the primary purpose of this study was to analyze how certain military duties and assignments affect the marital status of military personnel. More comprehensive and more accurate studies, with the help of better-organized data, would help policy makers resolve family-related problems and use scarce resources more effectively.

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