NAVAL POSTGRADUATE SCHOOL
Monterey, California

19980611 073

THESIS

THE EFFECT OF MILITARY SERVICE AND SKILL TRANSFERABILITY ON THE CIVILIAN EARNINGS OF VETERANS

by

Steven J. Petroff

March, 1998

Thesis Advisor:	Stephen L. Mehay
Associate Advisor:	Michael D. Cook

Approved for public release; distribution is unlimited.

REPORT DOCUMENTATION PAGE

Form Approved
OMB No. 0704-0188

Public reporting burden for this collection of information is estimated to average 1 hour per response, including the time for reviewing instruction, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to Washington headquarters Services, Directorate for Information Operations and Reports, 1215 Jefferson Davis Highway, Suite 1204, Arlington, VA 22202-4302, and to the Office of Management and Budget, Paperwork Reduction Project (0704-0188) Washington DC 20503.

1. AGENCY USE ONLY *(Leave blank)*	2. REPORT DATE March,1998	3. REPORT TYPE AND DATES COVERED Master's Thesis

4. TITLE AND SUBTITLE The Effect of Military Service and Skill Transferability on the Civilian Earnings of Veterans.	5. FUNDING NUMBERS
6. AUTHOR(S) Petroff, Steven J.	

7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES) Naval Postgraduate School Monterey, CA 93943-5000	8. PERFORMING ORGANIZATION REPORT NUMBER

9. SPONSORING / MONITORING AGENCY NAME(S) AND ADDRESS(ES)	10. SPONSORING / MONITORING AGENCY REPORT NUMBER

11. SUPPLEMENTARY NOTES

The views expressed in this thesis are those of the author and do not reflect the official policy or position of the Department of Defense or the U.S. Government.

12a. DISTRIBUTION / AVAILABILITY STATEMENT Approved for public release; distribution is unlimited.	12b. DISTRIBUTION CODE

ABSTRACT

This thesis analyzes the effect of military service on the civilian earnings of veterans. It specifies and estimates log-earnings models to obtain the impact of (1) veterans status, (2) transferability of military-acquired skills, and (3) length of service. Data from the 1992 Reserve Components Survey was used to develop a matched comparison group analysis between veterans (reservists with between two and twenty years of active service) and nonveterans (reservists with less than two years of active service). The results indicate a small negative effect of veterans status on both male and female veterans' earnings. When examined separately by branch of service, male Army veterans suffered earnings penalties, male Navy veterans experienced no earnings differentials, and male Air Force and Marine Corps veterans received earnings premiums. Female Navy veterans suffered earnings penalties, with no differentials noted for female veterans of the other branches. Examining earnings by reserve component revealed that male Army Reserve, Army National Guard, Naval Reserve, and Air Force Reserve members received earnings penalties with no differentials noted for Air National Guard or Marine Corps Reserve veterans. Veterans of all services, with the exception of the Army, benefited from having transferable military skills. Length of active duty service had no significant impact on veterans' earnings.

14. SUBJECT TERMS Veterans, Post-Service Earnings, Military Service, Military Training, Transferability, Earnings Function, Human Capital, Reserve Component	15. NUMBER OF PAGES 112
	16. PRICE CODE

17. SECURITY CLASSIFICATION OF REPORT Unclassified	18. SECURITY CLASSIFICATION OF THIS PAGE Unclassified	19. SECURITY CLASSIFI- CATION OF ABSTRACT Unclassified	20. LIMITATION OF ABSTRACT UL

NSN 7540-01-280-5500

Standard Form 298 (Rev. 2-89)
Prescribed by ANSI Std. 239-18

THE EFFECT OF MILITARY SERVICE AND SKILL TRANSFERABILITY ON THE CIVILIAN EARNINGS OF VETERANS

Steven J. Petroff
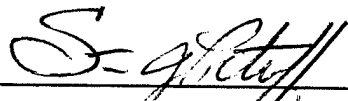Lieutenant, United States Navy
B.A., Old Dominion University, 1990

Submitted in partial fulfillment of the
requirements for the degree of

MASTER OF SCIENCE IN MANAGEMENT

from the
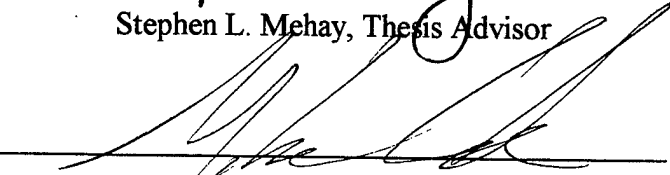
NAVAL POSTGRADUATE SCHOOL
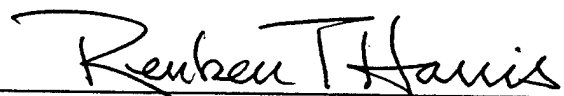### March, 1998

Author: _____

Steven J. Petroff

Approved by: _____

Stephen L. Mehay, Thesis Advisor

_____

Michael D. Cook, Associate Advisor

_____

Rueben Harris, Chairman
Department of Systems Management

iii

ABSTRACT

This thesis analyzes the effect of military service on the civilian earnings of veterans. It specifies and estimates log-earnings models to obtain the impact of (1) veterans status, (2) transferability of military-acquired skills, and (3) length of service. Data from the <u>1992 Reserve Components Survey</u> was used to develop a matched comparison group analysis between veterans (reservists with between two and twenty years of active service) and nonveterans (reservists with less than two years of active service). The results indicate a small negative effect of veterans status on both male and female veterans' earnings. When examined separately by branch of service, male Army veterans suffered earnings penalties, male Navy veterans experienced no earnings differentials, and male Air Force and Marine Corps veterans received earnings premiums. Female Navy veterans suffered earnings penalties, with no differentials noted for female veterans of the other branches. Examining earnings by reserve component revealed that male Army Reserve, Army National Guard, Naval Reserve, and Air Force Reserve members received earnings penalties with no differentials noted for Air National Guard or Marine Corps Reserve veterans. Veterans of all services, with the exception of the Army, benefited from having transferable military skills. Length of active duty service had no significant impact on veterans' earnings.

TABLE OF CONTENTS

LIST OF TABLES

I. INTRODUCTION

A. THE CONCERN OF POST SERVICE EARNINGS OF VETERANS

The primary objective of this thesis is to examine the effects of military service on the post-military earnings of veterans. Data from the 1992 DOD Reserve Components Survey (RCS) are statistically analyzed to determine if an earnings differential exists between veterans and comparable non-veterans. The RCS has been administered twice, once in 1986 and again in 1992 by the Defense Manpower Data Center (DMDC) in coordination with the Deputy Assistant Secretary of Defense (Guard/Reserve Manpower and Personnel). The RCS was designed to create a cross-service dataset which could be used to study the impact of personnel policies on service members and their families.[1]

Prior studies on this topic have decomposed military service into its various elements, including branch of service, transferability of the military training to the civilian sector, and length of service. The primary focus of this research is to examine each of these three features of military service to determine the separate effect of each on post-military earnings of veterans.

In addition to the background on one's military service, the 1992 RCS provides extensive demographic and employment information on each respondent. Demographic variables examined in this thesis include race, number of children, marital status, and age. Civilian information includes industry and occupation of employment, weekly hours worked; plus annual and weekly earnings.

---

[1] Description of RCS taken from Miller (1991).

The RCS data also provides the basis for a matched comparison group analysis that was critical to this thesis.[2] The research design consists of comparing veterans (reservists with two or more years of active duty service) and nonveterans (reservists with less than two years of active duty service). The nonveterans are matched in the sense that both groups belong to the reserves. To conduct a matched comparison group analysis, RCS data was used to provided a homogenous sample. The first advantage RCS provides in creating this sample is a control for selection bias (both self selection and systematic selection by the military). Self selection bias is controlled because reservists are individuals who have similar tastes for the military thus minimizing the problem that is normally encountered with other data when comparing veteran to nonveteran civilians. Administrative bias is controlled in a similar way. All reservists must meet common screening standards that makes them eligible to serve on active duty. Additionally, all reservists share a common willingness to commit to long-term contracts, a trait that further supports a homogenous sample. The RCS data also eliminates self-disclosure problems of true veteran status. In other survey data, it may not be possible to prove if someone is truly a veteran. One additional advantage in using RCS data is its large sample size; 36,335 reservists responded to a 147-question survey that provided a large amount of data in a variety of topics.

Multiple regression models are developed to explain differences in the civilian earnings of veterans and non-veterans. The earnings variable is measured three different ways: as

---

[2] Details on the RCS and a matched comparison group analysis are detailed in Chapter III and are based on the discussion in Hirsch and Mehay (1997), and Mehay and Hirsch (1996).

annual income, weekly earnings, and hourly wages. Several specifications of the basic earnings model are run for each of the three earnings categories. Annual income includes all labor earnings for the year plus all non-labor income. Weekly earnings and hourly wages are based on income and hours worked at a main civilian occupation only. The reason for separating the earning models into three categories is to capture any differences in annual, weekly, or hourly earnings, and in hours worked. A separate analysis is conducted for both males and females using the same regression models.[3] Also, the models estimate the effect of veterans status by reserve component to determine whether there are systematic differences between veterans and nonveterans who serve in each reserve component.

Active duty members are periodically faced with deciding between continuing their military careers or pursuing private sector employment. Bryant and Wilhite (1990) argue that a common belief is that military service provides a "veteran's premium" after one leaves active duty. Other researchers argue the premium is the product of enhanced productivity skills and enlistment screening methods that send positive signals to employers. Alternatively, Bryant and Wilhite explore the possibility that veterans status can have a negative impact on earnings, depending on the socio-economic background of the veteran. In the same study, Bryant and Wilhite conclude that the pure effect of time in service tends to reduce the wages earned during the early years of civilian worklife. It is easy to see how service members can make misinformed career (stay/leave) decisions if

---

[3] A detailed description of the regression models and explanatory variables is provided in Chapter III.

they do not know how military service truly affects their post-military earnings prospects.

Many new entrants are also concerned about the effect of military service on their potential future civilian earnings. According to Mangum and Ball (1987), 30 percent of the males who enlisted in the military cited "training opportunities" as their prime motivation for joining. Assuming a recruit is qualified,[4] his/her knowing in advance what military training is most transferable to the private sector could result in a better recruit/ occupation match. Other benefits of proper matching include improved worker morale, higher motivation, and increased productivity. Intuition suggests recruits choosing military occupations offering the best potential for post-military employment will likely be better students and therefore more productive workers.

The same concerns of recruits when choosing employment in the military versus the civilian sector also apply to the choice of branch of service to join: that is, which service is the most personally beneficial? Prior studies on the effect of military service have focused heavily on training and skill transferability. One study concluded a wage penalty exists for general military service, but if certain military job skills were transferable to the civilian labor market then the negative effect could be offset (Bryant, Samaranayake, and Wilhite, 1993). An earlier study by Bryant and Wilhite (1990) found a wage penalty for Army and Marine Corps veterans with training having no offsetting effect. They also determined Navy service carries a wage penalty, but can be offset by training. The Air Force was the only service to have both a positive wage and training effect on post-military earnings.

---

[4] Qualified is typically determined by AFQT scores and education level.

4

This type of information can be useful to recruits who are truly concerned about their future careers.

Some of the major DOD policies that are affected by post-military earnings include retention, recruiting, and training. As mentioned previously, active duty service members are interested in post-military earnings when making a career choice, so it is equally important for retention policy makers to have the same knowledge. A large part of retention policy involves the use of Selective Reenlistment Bonuses (SRB's) and the estimation of civilian earning differentials of veterans and nonveterans. In a sense, the SRB is a retention tool designed to offset earning differentials that cause service members to leave the military. According to Cymrot (1987), the SRB amount and potential civilian earnings of veterans are primary considerations in the reenlistment decision. Establishing a cost-effective and efficient retention program depends heavily on proper SRB amounts and knowledge of post-military earnings of veterans.

Service recruiting commands can use wage differential information as enticements to new entrants. Recruiting commands can focus on the positive effects of military service by emphasizing the benefits of free training and the learning of life-long career skills. The military and new entrants can also use this information to facilitate a better recruit/occupation match.

Developers of military training programs have the same basic concerns as in recruiting and retention; that is, balancing the needs of the military with the desires of the recruits. Though the military does not exist for the purpose of training citizens for future civilian employment (Mangum and Ball, 1987), it may provide veterans with a higher stock of

human capital that augments their civilian earnings potential (Bryant and Wilhite, 1990). By carefully demonstrating how military training can be relevant in civilian careers,[5] commands can use information discovered from this type of research to motivate students to study harder and become more productive workers.

As the military continues to downsize, more and more veterans will enter the civilian labor force. If a wage differential exists in favor of non-veterans (a wage penalty for military service), then more assistance can be provided to veterans to assist their transition to the civilian labor market. For example, the role of DOD's Transition Assistance Program (TAP) could be expanded to include job placement assistance. Finally, the effect of military service on minorities has been a long standing concern of government policy makers. It is especially important to know if wage differentials exists for minority veterans and to determine if it is the result of military service.

B. ORGANIZATION OF THE STUDY

Chapter II contains the general and specific background research that has been conducted on the topic of military service and its effects on veterans' post-military earnings. Chapter III describes the data, methodology, model, and variables used in the analysis. Chapters IV, V, and VI present the findings of the analysis for males, females, and Reserve Components, respectively. Chapter VII provides conclusions and recommendations based on the results of Chapters IV, V, and VI.

---

[5] The goal is to motivate students, but the major emphasis should be placed on the relevance of training in military versus civilian applications.

II. LITERATURE REVIEW

A. BACKGROUND

Prior studies have typically focused on several key issues in an attempt to determine the effects of military service on the civilian earnings of veterans. One issue has been the effect of military service in certain eras. Specifically, the effects of serving during World War II, the Korean Conflict, the Vietnam War, and the post-1973 All Volunteer Force (AVF) period are commonly analyzed to determine what impact they have on post-service earnings. This thesis examines veterans from the period of 1971 through 1991.

Another key objective in prior research has been to determine the "pure" effect of military service on the civilian earnings of veterans. Military service has been broadly defined and opened to many interpretations by numerous research. However, most studies have commonly decomposed military service into two distinct components: 1) military training, and 2) military experience. The primary concern with military training has been its transferability to the private labor market: that is, how general is the training? The second component of military service is related to military experience. It is commonly believed military experience imparts leadership skills, personal maturity, and responsibility. Bryant and Wilhite (1990), et al., for analysis purposes, measure military experience by length of service and branch of service; the analysis in this thesis also defines military experience the same way. The third major issue commonly examined in determining veteran-nonveteran civilian earnings differentials is differences in the military experience by demographic groups. It is important to determine whether military experience differ by demographic variables such as race, age, education, and marital status.

There are other important issues surrounding the topic of how military service prepares veterans for post-service employment. One valid and strongly supported theory that suggests a positive effect of veterans status is the "bridging environment." The concept of a "bridging environment" implies that the military service provides a supporting link for veterans in preparing them for the civilian labor market. Finally, the topic of investment in human capital is extremely relevant and is the basis for the regression model used in this research. The remaining sections of this chapter explain in greater detail each of these issues and their relevance to this thesis.

B. SERVICE DURING DIFFERENT ERAS

As mentioned early in the chapter, a widespread interest has existed since WWII in determining what effect serving in different eras has had on the post-military earnings of veterans. Several studies conducted on the WWII and Korean Conflict eras revealed that a positive earnings differential existed for veterans. The studies generally found that veterans from both eras had an earnings advantage of 3 to 12 percent in their civilian occupations (Mangum and Ball, 1989). Of note, however, the military wage premium has steadily declined since WWII up through 1985 (Bryant, Samaranayake, and Wilhite, 1993).

Perhaps the most studied era is the Vietnam War. Studies on the Vietnam era have revealed different findings on the true effect of military service on the civilian wages of veterans. Some researchers suggests that a small wage penalty exists for white veterans and a premium for black veterans (Hirsch and Mehay, 1997). According to Mangum and Ball (1989), Vietnam veterans incur a 19 percent wage penalty in the civilian labor market.

Further research findings on Vietnam veterans utilizing different data suggests only a 2 percent earnings penalty exist (Berger and Hirsch, 1983). Two things are consistent on all research on the Vietnam era; it was a unique period in the history of American society, and for the first time since WWII military service had a broad, negative effect on veterans' status in the labor market.

The post-1973 AVF period has also received a lot of attention. The AVF veterans were perhaps the most studied group where the distinction was made between military experience (length and branch of service) and military training to determine their separate effect on the post-service earnings of veterans. A common finding has been that military experience during the AVF period typically has a negative impact on post-service earnings of veterans but could be offset by military training if the training is transferable to a civilian occupation (Bryant and Wilhite, 1990; Bryant, Samaranayake, and Wilhite, 1993; Mangum and Ball, 1989).

C. MILITARY TRAINING

According to Bryant and Wilhite (1990), military training exerts a positive influence on the civilian wages of veterans and depending on the length of service relative to the length of military training, the veteran can have a relative advantage over the nonveteran. There are also possible negative effects of military training. Bryant and Wilhite (1990) argue if military training is too specific or very little training has been received it may be of limited value in the private market. There is little doubt that the armed forces provide training for a variety of skills and if those skills are transferable to the private sector, one should expect higher wages.

Identifying what military training is transferable to civilian jobs is a critical step in understanding its effect on veteran wages. Magnum and Ball (1989) state that a prime concern in determining transferability is equivalence. Equivalence refers to military and civilian training programs that teach very similar or identical skills. They discovered that only 45 to 50 percent of veterans used their military training in civilian occupations, very similar to the transfer percentages in civilian training. Magnum and Ball also support the findings of Bryant and Wilhite (1990) that additional training relative to length of service will increase civilian wages of veterans. An 11.8 percent increase in wages (for non-retired veterans) occurred for each additional year of military training, if the civilian job was similar to the military occupation.

Finally, Hirsch and Mehay (1997), using data from the 1986 RCS, found that the transfer of military training and skills produces positive civilian returns, regardless of the branch of service. However, they determined that only 17 percent of AVF veterans transferred their military occupations to the civilian sector, a significantly smaller percentage than in Magnum and Ball (1989). In Hirsch and Mehay, the transfer rates by service were 21.2 percent for the Navy, 14.2 for the Air Force, 9.2 for the Marine Corps, and 8.7 for the Army.

D. MILITARY EXPERIENCE

Much of the previous research examining the effects of military service on veterans wages did not make the distinction between the separate effects of military experience and military training. More recent studies have specifically addressed the impact of military experience by separately examining two aspects of military service: (1) length of service,

and (2) branch of service (Bryant and Wilhite, 1990). Unlike military training, military experience alone generally has been found to have a negative impact on civilian wages of veterans. Bryant and Wilhite (1990) state that after controlling for several social, economic and demographic characteristics, time in the military appears to reduce the wage earned during the early years of civilian worklife. Their overall implication is that the longer a veteran remains on active duty the greater the wage differential will against them. Bryant and Wilhite (1990) also state that veterans of the Army, Navy, or Marine Corps are at a relative disadvantage compared to Air Force veterans. They also discovered that if military training is transferable, it can sometimes offset the negative effect of serving in a particular branch of service. Additionally, Bryant and Wilhite found that military service in the Army and Marine Corps adversely affected veterans' earnings and military training did little to offset the negative effect of experience. Navy experience also negatively impacted wages but was offset by Navy training. Finally, for Air Force veterans, both the time spent and their training positively affected wages.

Findings from other studies on the effects of military experience parallel that of Bryant and Wilhite (1990). In Magnum and Ball (1989), they cite findings from other studies that reveal veterans with 20 or more years of service typically earn between 14 to 25 percent less than non-career veterans.

E. DEMOGRAPHICS

In addition to the effects of military service, demographic information is equally important in studies dealing with issues of veterans; its use adds a valuable dimension to any research. The use of demographic information is critical for many reasons. According

to Bryant and Wilhite, (1990) along with military service, a veteran's employment status is largely dependent on his/her socio-economic background. Prior studies on veterans' post-military earnings have typically included such demographic variables as race, gender, education, age, marital status, number of children, civilian occupation, and industry code in the earnings model.

Nearly every study conducted on the post-service earnings of veterans differentiates the effect of military service between black and white veterans. Research findings on the effects of race on post-service earnings of veterans are generally consistent and typically reflect a positive effect for blacks when compared to whites (Berger and Hirsch, 1983) (Bryant and Wilhite, 1990). Berger and Hirsch (1983) et al, conclude that black veterans have universally done better than black nonveterans even during the Vietnam era where veteran status had an overall negative effect on post-service earnings. Bryant, Samaranayake, and Wilhite (1993), also found that AVF veterans suffer a wage penalty but that the penalty is larger for whites than nonwhites. One study (Hirsch and Mehay, 1997) found that white male Vietnam veterans suffered a small earnings penalty when compared to male nonveterans of the same era, whereas nonwhites earned a small earnings premium. Hirsch and Mehay go on to say that during the AVF period the trends reversed where white veteran earning differentials became less negative and nonwhite veteran earning premiums less positive.

Conclusions about the effect of race and military service on veterans wages varies mostly by the eras examined and data sources used. In an effort to continue the same

research, this thesis utilizes more current data (the 1992 RCS) to determine the effect of military service on of the post-service earnings of AVF veterans by race.

Gender is also an ongoing topic of interest for government policy makers and only a few studies have been conducted on female veterans. The effects of gender and military service on post-service earnings of female veterans is important for several reasons. As the pool of qualified male enlistees declines more women will be sought to fill the needs of the military. Additionally, more occupations in the military are opening up to women increasing the demand for women. The end result of having more women in the military is that eventually there will be more female veterans entering the civilian labor pool. According to Bryant and Wilhite (1990) in a study on post-Vietnam veterans, females earned 27 percent less than their male counterparts. Research conducted by Mehay and Hirsch (1996) on the post military earnings of female veterans, find that female veterans possess a higher level of measured earnings endowments than do nonveterans. However, in the same study, white female veterans were found to have a sizable wage disadvantage when compared to their nonveteran counterparts. The most favorable finding for white women Mehay and Hirsch could find was that time spent in the military has a value equivalent to time spent in the civilian labor market. Additionally, wage differentials for nonwhite women were more favorable than for white women.

As the percentage of women in the military continues to increase, it is important that further research continue on the post-service earnings of female veterans. Successful recruiting efforts will depend heavily on the positive perception that the military will provide useful post-military job skills for female enlistees. The same concerns exist when

13

women leave the military. Appropriate adjustments can be made in regards to offering women more military training and job opportunities as well as providing them more assistance in locating civilian employment.

Education is a variable that provides several useful pieces of information. It is used primarily a screening device for new entrants into the military. Recruits who are high school graduates are thought to have the character that is required to fulfill an enlistment contract; someone who will stick with the program and not quit early. According to Cooke and Quester (1992), recruits who are high school graduates, have high test scores, and entered the Navy through the Delayed Entry Program have substantially better success adapting to Navy life than do other recruits. Education is highly encouraged in the military because it is perceived as an investment in the stock of human capital. Several studies on the effects of education on post-service earnings of veterans have resulted in mixed findings. According to Bryant and Wilhite (1990), additional education provides positive wage premiums for veterans. When comparing veterans and nonveterans however, Berger and Hirsch (1983) and Bryant, Samaranayake, and Wilhite (1993), find that high school dropouts have the largest positive earnings differential. In fact, they find that veterans with high school diplomas or college experience suffer a wage penalty when compared to nonveterans. It is not likely that higher education is the cause for the wage penalties. Perhaps a better explanation is the veteran's lack of work experience in the chosen field of education. A veteran who enters a civilian job (that higher education has prepared him/her for) with limited work experience may start behind his/her civilian counterparts in terms of lower wages.

14

Marital status is a common focal point for research on veterans. According to Hirsch and Mehay (1997), married male veterans experience a larger civilian wage premium than married nonveterans. Mehay and Hirsch's (1996) study of post-military earnings of women veterans, find that married female veterans do worse than married nonveterans. Schwartz (1983) finds that married male Korean Conflict veterans do have a higher civilian wage premium than married male nonveterans. He also discovers, however, the opposite is true for married Vietnam veterans. Bryant and Wilhite's (1990) study of AVF veterans finds that being married has a distinct earnings advantage over being single, separated, or divorced. In Miller's thesis (1991), she universally finds that marriage has a positive impact on the post-service earnings of veterans from the AVF period. Marital status is a revealing statistic for both the military and the service member. Its study should be ongoing in order to accurately assess the impact on veterans' earnings potential as well as job performance.

The impact of children on the post-service earnings of veterans has been examined in several studies. Hirsch and Mehay (1997) find that children have a positive effect on civilian wages earned by both male veterans and nonveterans from the AVF period. However, veterans experienced a lower return on the number of children than nonveterans. Miller (1991) finds a general overall positive effect of children on post-service earnings of male veterans. According to Mehay and Hirsch (1996), female veterans experienced a negative effect on earnings when they had children and their earnings were lower than the nonveteran counterparts. The number of dependents is a

variable that warrants further consideration and is used extensively in the earning models in this thesis.

Finally, demographic variables relating to the nature of civilian employment are very relevant to this thesis and have been widely used in previous similar studies, Hirsch and Mehay (1997), Mehay and Hirsch(1996), and Miller (1991). The civilian occupation, the industry in which one works, government or private sector employment, and full time versus part-time, are the specific areas of civilian employment that are examined in this thesis.

F. HUMAN CAPITAL THEORY

Human capital theory is the primary framework underlying the earnings model in this thesis. An investment in human capital is usually accomplished in one of three ways; 1) with education and training , 2) migration of a worker, or 3) a search for a new job. With any investment, there is an initial cost that is incurred with the hopes that it will be recouped over a future period of time. Human capital can be thought of as a set of skills that can be "rented out" to an employer. The value of the human capital is the earnings it receives in the labor market. Investment expenditures in human capital can be placed into three categories; 1) direct, out-of-pocket expenses, such as tuition and books, 2) forgone earnings during the investment period, and 3) psychic costs (Ehrenberg and Smith, 1994).

A common belief is that military service is an investment in human capital for veterans; it is a way to learn lifelong skills and gain valuable work experience. The concern over human capital theory in its relation to military service takes several forms. The first issue is if military experience (length and branch of service) results in a post-service earnings

16

penalty for veterans, then a service member's investment of time in the military was a poor choice. Though no real out-of-pocket expenses are incurred by service members, they do face the possibility of opportunity costs in the form of forgone civilian earnings and lost civilian work experience. The second issue involves military provided training and its transferability to the private sector. Several prior studies on this subject conclude that military training must be transferable to a civilian occupation in order for veterans to experience post-service earnings advantage over nonveterans (Magnum and Ball, 1989) (Bryant, Samaranayake, and Wilhite, 1993) (Hirsch and Mehay, 1997). If a veteran is unable to compete in the private labor market with military-acquired skills then the value of the military service will be questioned.

Along with being an investor in human capital, the military has also been viewed as a "bridging environment" for service members to transition from high school to civilian employment. Minorities have typically benefited the most from the "bridging" effect (Martindale and Poston, 1979). For blacks, military service seems to provide them with a stock of human capital that is superior to black nonveterans and is reflected in their post-service earnings (Berger and Hirsch, 1983) et al.

A "veteran's premium" is also considered to be a dividend of the military's investment in human capital. Bryant and Wilhite (1990), believe the "premium" is the consequence of military-induced productivity growth and favorable signals sent by the presence of having a veterans status. A part of the "military experience" is going through fairly rigorous entrance screening, and that screening can be considered an investment in human capital. Little and Fredland (1979) conclude the "veterans' premium" is the result of

enhanced productivity and screening. Additionally, De Tray (1982) suggests that the screening process of veterans is what gives a positive signal to employers indicating relatively high productivity.

Investment in human capital is an important issue for both the military and potential new entrants. In order for the military to attract new recruits, it must be perceived as an institution that provides adequate skills for future civilian employment. For new entrants making career and educational choices, it is important to know exactly what military service will offer them.

III. DATASET, METHODOLOGY, MODELS, AND VARIABLE SELECTION

A. DATASET

The dataset for this thesis is based on an edited compilation of responses from the 1992 Reserve Component Surveys administered by the Defense Manpower Data Center (DMDC) in coordination with the Deputy Assistant Secretary of Defense (Guard/Reserve Manpower and Personnel). The Reserve Components Surveys were designed to create a cross-service dataset that could be used to study the impact of personnel policies on service members and their families. The surveys included only members of the Selected Reserves who were in an active drilling status.[6] The 1992 dataset consisted of 36,335 observations who responded to 147 survey questions.

B. METHODOLOGY

To capture any differences in measures of civilian income, the earnings variable was measured three different ways: as annual income, weekly earnings, and hourly wages rates. Data for annual income was taken from the RCS question:

> What was the total amount that you earned from all civilian jobs or your own business before taxes and other deductions? Include earnings as a Guard/Reserve technician. Include commissions, tips, or bonuses. Give your best estimate.

Weekly earnings data was taken from the RCS question:

> What were your usual weekly earnings from your (main) civilian job or your own business before taxes and other deductions? Give your best estimate.

Unlike weekly earnings, annual income includes earnings from outside the main civilian job; this is the primary reason for measuring the earnings variable in different ways.

---

[6] Description of RCS dataset taken from Miller (1991).

Additionally, total annual income differs among individuals due to differences in the number of weeks worked during the year as well as due to differences in the wage rate. In some occupations, the number of weeks worked annually and weekly earnings may fluctuate due to seasonal employment. Earnings are also measured as the hourly wage rate due to the varying numbers of hours worked per week. Hourly wage is calculated by dividing usual weekly earnings by usual hours worked per week at the respondent's main civilian job. Data for weekly work hours was taken from the RCS question:

"How many hours per week did you usually work at your main civilian job?"

The initial 36,335 observations were screened to eliminate respondents who were not in the labor force (eg., homemakers or retirees) or were in school or unemployed. Observations were omitted based on the following criteria:

-temp out of work	-unemployed	-in school
-retired	-homemakers	-unpaid workers
-self employed	-age 60 plus years	-age under 20 years
-entered service on/before 1973		

The final samples included male and female enlisted members of the Army Reserve, Army National Guard, Naval Reserve, Air Force Reserve, Air National Guard, and Marine Corps Reserve. Officers were omitted. As a part of this research, females and males were separated in order to examine the specific effects of military service by gender. The original sample and the number observations that were deleted to meet the sample criteria are shown in Table 1. Table 2 contains the final sample sizes for each of the separate reserve components.

Table 1. Sample Sizes Remaining After Screening
(All Reserves)

RESTRICTION	ANNUAL EARNINGS	WEEKLY EARNINGS	HOURLY EARNINGS
No Restrictions	36,335	36,335	36,335
Restrictions applied	9,402	10,403	10,300
Females deleted	6,897	7,552	7,480

Table 2. Final Sample Sizes and Percent Distribution by Reserve Component
(Males Only)

RESERVE COMP'T	HOURLY WAGE SAMPLE SIZE	PERCENT
Army Reserve	1,501	.196
Army National Guard	2,871	.376
Naval Reserve	625	.082
Air Force Reserve	588	.077
Air National Guard	1,264	.166
Marine Corps Reserve	787	.103
Total	7,636	100 %

C. MODEL

The model used in this thesis is based on human capital theory and was estimated using ordinary least squared (OLS) estimating techniques. The natural log of the individual's annual income, weekly income, and hourly wage were used as the dependent variables so that the coefficients of the independent variables can be interpreted as the percentage change in the income or earnings of the individual given a unit change in the independent variable. The general model was specified as follows:

$$\ln(\text{earnings}) = \alpha + B_1 D + B_2 W + B_3 M + u; \text{ where,}$$

α	=	constant
B_1, B_2, B_3	=	estimated coefficients
D	=	a vector of demographic variables summarized in Table 3.
W	=	a vector of work-related variables summarized in Tables 4 and 5.
M	=	a vector of military-related variables summarized in Table 3.

Six alternative model specifications were used to estimate the effect of post-service earnings of both male and female veterans. The models were applied to annual and weekly earnings as well as to hourly wages. Only one of the six specified earnings models was used when estimating separate models for each reserve components.

In the earnings models, black and hispanic reservists are compared to white reservists. The age variable indicates the percentage change in earnings for each additional year of age. The age squared variable is also included to determine if additional years of age have diminishing returns to earnings. Reservists in the three categories of marital status (present, separate, and divorced or widowed) are compared to reservists that are single. Reservists with high school diplomas, some college experience, and four-year college degrees and higher, are compared to reservists who are non-high school graduates. All industry variables are compared against the base industry variable manufacturing. The base occupation variable is services. Reservists who work at their civilian jobs part time are compared against full time workers. Under the military variables, veterans (reservists with two or more years of active service) are compared to non-veterans (reservists with less than two years active service). Veterans' length of service is also included in the analysis and indicates the percentage change in earnings for each additional year of service. The square of the length of service is included to determine if additional years of service have diminishing returns. Finally, the transferability of military occupations to the private sector is examined to determine the effects on veterans' earnings.

Table 3.   Variable Definitions

<u>Income Variables</u>

INCYRLY   Respondent's annual income (restricted to values greater than zero)

INCWKLY   Respondent's weekly income (restricted to values greater than fifty)

WAGE   Respondent's weekly income divided by usual hours worked per week
           (restricted to values greater than zero and less than one hundred)

<u>Dependent Variables</u>

LNINCYRLY   Natural logarithm of respondent's annual income

LNINCWKLY   Natural logarithm of respondent's weekly income

LNWAGE   Natural logarithm of respondent's wage

<u>Demographic Variables</u>

AGE   Range 20 to 59 years

BLACK   1 if respondent's race is black
           0 otherwise
HSGRAD   1 if respondent is a high school graduate
           0 otherwise
SOMECOLL   1 if respondent has 2 or less years of college
           0 otherwise
COLLGRAD   1 if respondent has a 4 year college degree (BA/BS)
           0 otherwise
COLLPLUS   1 if respondent has some graduate education, a Master's degree, or
           Doctoral degree 0 if otherwise
AGE   Age on last birthday

AGE 2   Age squared

PRESENT   1 if respondent is presently married
           0 otherwise
SEPARATE   1 if respondent is currently separated
           0 otherwise
DIVWIDOW   1 if respondent is currently widowed or divorced, 0 otherwise

CHILD   Number of dependents

Work Variables

WORKPTC   1 if work part time in civilian job
                    0 otherwise

UWKHOURS Usual number of hours worked in a week at main civilian job

Military Variables

ALLVET   1 if total active service greater than 2 years
                    0 otherwise

ARMYVET   1 if active service in Army greater than 2 years, and first entered service as
                    active duty Army, 0 otherwise

NAVYVET   1 if active service in Navy greater than 2 years, and first entered service as
                    active duty Navy, 0 otherwise

AFVET   1 if active service in Air Force greater than 2 years, and first entered
                    service as active duty Air Force, 0 otherwise

MCVET   1 if active service in Marine Corps greater than 2 years, and first entered
                    service as active duty Marine Corps, 0 otherwise

TRANSFER 1 if civilian occupation is similar to guard/reserve duty and primary
                    occupation code in reserve/guard is the same as one had on active duty

ARMYTRAN 1 if both ARMYVET and TRANSFER
                    0 otherwise

NAVYTRAN 1 if both NAVYVET and TRANSFER
                    0 otherwise

AFTRAN   1 if both AFVET and TRANSFER
                    0 otherwise

MCTRAN   1 if both MCVET and TRANSFER
                    0 otherwise

LOS   The number of years served on active duty

LOS2   The number of years served on active duty squared

Table 4.   Industry Codes

Variable	Industry Included
AGRIMIN	Agriculture, Forestry, Fisheries, Mining and Construction
MANUFAC	Manufacturing
TRANSP	Transportation, Communication, and other Public Utilities
TRADE	Wholesale trade
FINANCE	Finance, Insurance, Real Estate, Business
PROSERV	Professional services
PUBADM	Public Administration

Table 5.   Census Occupations

Variable	Occupation Included
MANAGER	Administrative, Managerial and Management related
TECH	Technician
SALES	Sales
ADMIN	Administrative support, clerical excluding Postal
SERVICES	Protective services, Postal and Food Services
CRAFT	Construction workers, Mechanics and Engineers
OPLABOR	Other Handlers, Helpers and Laborers

Table 6 : Model Specifications and Variables
(Sample = All Reserves)

Control Variables

BLACK HISP HSGRAD SOMECOLL
COLLGRAD COLLPLUS AGRIMIN
TRANP TRADE FINANCE PROSERV
PUBADM PRESENT SEPARATE DIVWIDOW
WORKPTC MANAGER TECH SALES ADMIN
CRAFT OPLABOR AGE AGE2 CHILD

Models

1A	lnINCYRLY	=	f(CONTROL VARIABLES , ALLVET)
1W	lnINCWKLY		
1H	lnWAGE		

1A	lnINCYRLY	=	f(CONTROL VARIABLES, ARMYVET,
1W	lnINCWKLY		NAVYVET, AFVET, MCVET)
1H	lnWAGE		

1A	lnINCYRLY	=	f(CONTROL VARIABLES, ALLVET,
1W	lnINCWKLY		TRANSFER)
1H	lnWAGE		

1A	lnINCYRLY	=	f(CONTROL VARIABLES, ALLVET,
1W	lnINCWKLY		ARMYTRAN, NAVYTRAN, AFTRAN,
1H	lnWAGE		MCTRAN)

1A	lnINCYRLY	=	f(CONTROL VARIABLES, ARMYVET,
1W	lnINCWKLY		NAVYVET, AFVET, MCVET, TRANSFER)
1H	lnWAGE		

1A	lnINCYRLY	=	f(CONTROL VARIABLES, ALLVET, LOS,
1W	lnINCWKLY		LOS2)
1H	lnWAGE		

Table 6 (cont'd): Model Specifications and Variables
(Sample= Individual Reserve Components)

Control Variables

BLACK HISP HSGRAD SOMECOLL
COLLGRAD COLLPLUS AGRIMIN
TRANP TRADE FINANCE PROSERV
PUBADM PRESENT SEPARATE DIVWIDOW
WORKPTC MANAGER TECH SALES ADMIN
CRAFT OPLABOR AGE AGE2 CHILD

Models

1A lnINCYRLY   = f([CONTROL VARIABLES], ALLVET,
1W lnINCWKLY   TRANSFER)
1H lnWAGE

IV. DATA ANALYSIS AND PRESENTATION: MALE RESERVISTS

A. DESCRIPTIVE STATISTICS

Table 7 presents the descriptive statistics for the samples used for each of the three

basic earnings models. The same samples are used throughout this chapter and consist of

all male reservists. The average earnings for reservists were $11.58, $521.14, and

$21,991.81 for the hourly wage rate, weekly income, and annual earnings, respectively.

Black reservists made up 11 percent of the samples and Hispanics 8 percent. The average

age of the reservists was approximately 29. The majority of reservists (58 percent) were

married while 33 percent were single. More reservists (23 percent) worked in public

administration than any other industry. The largest percentage of reservists worked in

craft-related occupations (24 percent); 86 percent held full-time civilian jobs. The average

length of active service for all reservists was 1.95 years. Veterans (reservists with two or

more years of active duty) made up 41 percent of the samples and averaged 4.76 years of

active service. Veterans with transferable occupations to the private sector made up 10

percent of the total sample of reservists. When veterans were examined separately, 18

percent of all veterans had transferable occupations into the private sector. Army veterans

had the lowest average transfer rate of 12 percent. Navy veterans had the highest transfer

rate of 26 percent. About 20 percent of Air Force veterans and 17 percent of Marine

Corps veterans had civilian jobs similar to their military occupations. Of note, the transfer

rates for veterans were computed separately and are not included in Table 7. The

veterans' transfer rates from this analysis are significantly different from those in Mangum

and Ball (1989), who found military skill transfer rates of between 45 to 50 percent.

Miller (1991) also found a higher overall transfer rate of 29 percent.

Table 7. Descriptive Statistics of Earnings Models

Hourly Wage Model (N=7480)

VARIABLES	MEAN	STD DEV
EARNINGS		
WAGE RATE	11.58	9.07
DEMOGRAPHICS		
BLACK	0.11	0.31
HISPANIC	0.08	0.27
CHILD	1.06	1.28
AGE	29.30	5.80
PRESENT	0.56	0.50
SEPARATE	0.02	0.15
DIVWIDOW	0.07	0.26
HSGRAD	0.31	0.46
SOMECOLL	0.48	0.50
COLLGRAD	0.09	0.29
COLLPLUS	0.04	0.19
INDUSTRY		
AGRIMIN	0.09	0.28
TRANSP	0.07	0.26
TRADE	0.16	0.36
FINANCE	0.08	0.26
PROSERV	0.06	0.23
PUBADM	0.22	0.42
OCCUPATION		
MANAGER	0.13	0.34
TECH	0.06	0.24
SALES	0.07	0.26
ADMIN	0.08	0.27
CRAFT	0.24	0.42
OPLABOR	0.21	0.41
WORKPTC	0.14	0.35
MILITARY		
ALLVET *	0.41	0.49
ARMYVET	0.16	0.37
NAVYVET	0.06	0.24
AFVET	0.11	0.31
MCVET	0.04	0.19
TRANSFER *	0.10	0.30
ARMYTRAN	0.02	0.14
NAVYTRAN	0.02	0.12
AFTRAN	0.02	0.15
MCTRAN	0.01	0.08
LOS	1.95	3.11

Weekly Income Model (N=7552)

VARIABLES	MEAN	STD DEV
EARNINGS		
INCWEEKLY	521.14	621.00
DEMOGRAPHICS		
BLACK	0.11	0.31
HISPANIC	0.08	0.27
CHILD	1.06	1.28
AGE	29.31	5.80
PRESENT	0.56	0.50
SEPARATE	0.02	0.15
DIVWIDOW	0.07	0.26
HSGRAD	0.31	0.46
SOMECOLL	0.48	0.50
COLLGRAD	0.09	0.29
COLLPLUS	0.04	0.19
INDUSTRY		
AGRIMIN	0.09	0.28
TRANSP	0.07	0.26
TRADE	0.16	0.36
FINANCE	0.08	0.26
PROSERV	0.06	0.23
PUBADM	0.22	0.42
OCCUPATION		
MANAGER	0.13	0.34
TECH	0.06	0.24
SALES	0.07	0.26
ADMIN	0.08	0.27
CRAFT	0.24	0.42
OPLABOR	0.21	0.41
WORKPTC	0.14	0.35
MILITARY		
ALLVET *	0.41	0.49
ARMYVET	0.16	0.37
NAVYVET	0.06	0.24
AFVET	0.11	0.31
MCVET	0.04	0.19
TRANSFER *	0.10	0.30
ARMYTRAN	0.02	0.14
NAVYTRAN	0.02	0.12
AFTRAN	0.02	0.15
MCTRAN	0.01	0.08
LOS	1.95	3.11

*Because of different definitions in variables, the sum of ARMYVET, NAVYVET, AFVET, and MCVET does not total ALLVET. A similar situation exists for the transfer variables.

Table 7. (Continued) Descriptive Statistics of Earnings Models

Yearly Income Model (N=6897)

VARIABLES	MEAN	STD DEV
EARNINGS		
INCYRLY	21991.81	12148.88
DEMOGRAPHICS		
BLACK	0.10	0.31
HISPANIC	0.08	0.46
CHILD	1.10	1.29
AGE	29.5	5.73
PRESENT	0.58	0.14
SEPARATE	0.02	0.14
DIVWIDOW	0.07	0.26
HSGRAD	0.31	0.46
SOMECOLL	0.49	0.50
COLLGRAD	0.10	0.30
COLLPLUS	0.04	0.19
INDUSTRY		
AGRIMIN	0.08	0.28
TRANSP	0.07	0.26
TRADE	0.15	0.36
FINANCE	0.07	0.26
PROSERV	0.06	0.23
PUBADM	0.23	0.42
OCCUPATION		
MANAGER	0.14	0.34
TECH	0.06	0.24
SALES	0.07	0.26
ADMIN	0.08	0.27
CRAFT	0.24	0.43
OPLABOR	0.21	0.41
WORKPTC	0.14	0.34
MILITARY		
ALLVET *	0.41	0.49
ARMYVET	0.16	0.37
NAVYVET	0.06	0.24
AFVET	0.11	0.32
MCVET	0.04	0.19
TRANSFER *	0.10	0.30
ARMYTRAN	0.02	0.14
NAVYTRAN	0.02	0.13
AFTRAN	0.02	0.15
MCTRAN	0.01	0.08
LOS	1.97	3.09

*Because of different definitions in variables, the sum of ARMYVET, NAVYVET, AFVET, and MCVET does not total ALLVET. A similar situation exists for the transfer variables.

B. MULTIVARIATE ANALYSIS

Results from estimating the separate earnings models are presented in Tables 8-13. For comparison purposes, each table contains the three basic earnings models; hourly wage, weekly income, and yearly income. Each table contains a specific version of the basic earnings model (each defined by various military variables). To avoid repetitive discussions, a single compilation of common findings for demographic, industry, and occupation variables is provided in the first part of the analysis.

The high adjusted R^2 values for all the earnings models indicate they provided a reasonable explanation for the variance in reservists' earnings. Of the three basic earnings models, Log INCYRLY provided the best goodness of fit with an average adjusted R^2 value of .330.

Black reservists were compared to white reservists in each of the six specific earnings models. In every situation, black reservists experienced an earnings penalty in weekly and yearly incomes, but there were no significant differences for hourly wage rates. On average, black reservists earned 5.4 percent lower weekly income and 7.5 percent lower annual earnings than white reservists. The results on annual earnings are similar to those in Miller (1991). Using data from the 1986 RCS, she found black reservists' annual income was 8 percent lower than white reservists'.

Hispanic reservists out-earned white and black reservists in all hourly wage and weekly income models with no significant differences for yearly income. Hispanics averaged 7.5 percent higher hourly wage rates and 6.6 percent higher weekly earnings than white reservists. These findings contrast with those in Browning, Loperato, and Poston (1973)

who found that Hispanic veterans' mean income was lower than white veterans in occupations very similar to those used in this thesis. In the same study, Hispanic, black, and white veterans all earned higher mean incomes than their nonveteran counterparts. However, the income differential between Hispanic veterans and nonveterans was twice that of black veterans and nonveterans, and six times that of white veterans and nonveterans. Perhaps during the time since the Browning, Loperato, and Poston study, Hispanics have been benefiting more from military service than either blacks or whites.

In every model, each additional year of age had a positive effect on reservists' earnings. The average premiums received were 6, 8, and 12 percent for hourly wage rates, weekly earnings, and yearly income, respectively. The age squared variable was negative in all cases indicating that reservists earnings would continue to rise until a certain age, level off, then decline. These findings are consistent with those in Bryant and Wilhite (1990).

Reservists who were married, separated, and divorced or widowed all experienced higher earnings premiums than single reservists. Married reservists had higher hourly wage rates, more weekly income, and larger annual earnings than single reservists. The earnings advantage for separated reservists was statistically significant in weekly and yearly incomes only with the largest premium being 20.8 percent in yearly income. Divorced or widowed reservists earned on average 13.6 percent higher yearly income than single reservists. Similar results on the effect of marital status were observed by Hirsch and Mehay (1997) and Miller (1991) using the 1986 RCS data.

Reservists with children experienced a very modest premium of approximately 1 percent in weekly income. No significant earning differences were noted in hourly wage

rates or yearly income. Hirsch and Mehay (1997) found a modest earnings premium in the hourly wage rate for reservists with children. Miller (1991) found slightly higher returns to children of 5 percent in both weekly and annual incomes.

In this thesis, education was categorized into four separate levels: high school graduate, some college, college graduate, and college plus. Each education variable was compared against the base of a non-high school graduate. Reservists with a high school education or higher experienced substantial earnings premiums in hourly wage rates, weekly income, and annual earnings. The earnings premium increased as the level of education rose. Reservists with "college plus" had the largest returns to education receiving on average 23 percent higher hourly wage rates than reservists who were non-high school graduates. Similar conclusions on the effect of higher education on earnings were reached by Hirsch and Mehay (1997) and Miller (1991).

Each industry variable used in the earnings models was compared to the base industry variable manufacturing. On average, reservists working in the agriculture or mining industries earned a premium of 6 percent in weekly income. No significant findings were noted for hourly wage rates or annual income. Working in the transportation industry provided reservists with average earning premiums of 10.4, 10.5, and 13.3 percent in hourly wage rates, weekly income and annual earnings, respectively. When compared to working in manufacturing, reservists in the trade, financial, and professional services industries all experienced earning penalties. Trade workers suffered the worst with penalties of 15, 18.8, and 17.4 percent in hourly wage rates, weekly income, and annual earnings, respectively. Reservists working in public administration received substantial

earning premiums in every model with the largest being 25.8 percent in annual income. Miller's (1991) results were slightly different. She found reservists who worked in transportation benefited the most earning 39 percent higher annual incomes. The next best industry she found was public administration where reservists earned 29 percent premiums.

The occupation variables included in the earnings models were all compared to the base occupation variable services. Reservists working as managers, technicians, salesman, and in crafts all had a significant earnings advantage over service workers in hourly wage rates, weekly income, and annual earnings. Reservists with administrative jobs received an earnings premium in hourly wages with no significant differentials noted in weekly or annual incomes. For reservists working as laborers, no significant income differentials were noted in any of the earnings models. Reservists who only worked part time in their main civilian jobs suffered substantial penalties in all earnings models when compared to reservists who worked full time. Similar findings on part-time workers were made by Hirsch and Mehay (1997) and Miller (1991).

The model in Table 8 was specifically designed to capture the individual effect of veterans status on the post-service earnings of veterans. For each of the three basic earnings models, the ALLVET coefficient was small, negative, and statistically insignificant. This finding matches that in Hirsch and Mehay (1997) who found insignificant wage differentials between veterans and nonveterans of both the draft and AVF eras. The opposite was found in Miller (1991). She determined a veterans status caused earnings penalties of 2 and 3 percent for weekly and annual incomes, respectively.

Table 8. OLS Regressions (Sample: Male/All Reserves)

Log WAGE

VARIABLE	COEFFICIENT	T-STAT	
DEMOGRAPHICS			
BLACK	-0.021	1.173	
HISPANIC	0.074	3.564	***
AGE	0.059	7.376	***
AGE2	-0.001	4.716	***
PRESENT	0.066	4.380	***
SEPARATE	0.062	1.541	
DIVWIDOW	-0.001	0.052	
CHILD	0.008	1.421	
HS GRAD	0.082	3.507	***
SOMECOLL	0.168	7.272	***
COLLGRAD	0.197	6.741	***
COLLPLUS	0.230	6.164	***
INDUSTRY			
AGRIMIN	0.001	0.027	
TRANSP	0.109	4.733	***
TRADE	-0.150	7.902	***
FINANCE	-0.061	2.640	***
PROSERV	-0.085	3.223	***
PUBADM	0.216	13.320	***
OCCUPATION			
MANAGER	0.148	7.088	***
TECH	0.134	5.060	***
SALES	0.047	1.757	*
ADMIN	0.049	2.067	**
CRAFT	0.166	9.656	***
OPLABOR	-0.005	0.270	
WORKPTC	-0.101	5.995	***
MILITARY			
ALLVET	-0.004	0.308	
INTERCEPT	0.811	6.572	***
ADJ R-SQUARE	0.238		
F-VALUE	90.916 ***		
N	7480		

Log INCWKLY

VARIABLE	COEFFICIENT	T-STAT	
DEMOGRAPHICS			
BLACK	-0.056	2.671	***
HISPANIC	0.068	2.847	***
AGE	0.078	8.561	***
AGE2	-0.001	5.806	***
PRESENT	0.112	6.457	***
SEPARATE	0.178	3.904	***
DIVWIDOW	0.025	0.896	
CHILD	0.011	1.837	*
HS GRAD	0.083	3.107	***
SOMECOLL	0.136	5.150	***
COLLGRAD	0.146	4.437	***
COLLPLUS	0.173	4.028	***
INDUSTRY			
AGRIMIN	0.061	2.440	**
TRANSP	0.110	4.141	***
TRADE	-0.189	8.649	***
FINANCE	-0.062	2.347	**
PROSERV	-0.110	3.606	***
PUBADM	0.201	10.815	***
OCCUPATION			
MANAGER	0.198	8.233	***
TECH	0.122	3.986	***
SALES	0.117	3.815	***
ADMIN	0.001	0.017	
CRAFT	0.158	7.998	***
OPLABOR	0.010	0.456	
WORKPTC	-0.292	15.136	***
MILITARY			
ALLVET	-0.015	1.029	
INTERCEPT	4.206	29.508	***
ADJ R-SQUARE	0.263		
F-VALUE	104.739 ***		
N	7552		

Log INCYRLY

VARIABLE	COEFFICIENT	T-STAT	
DEMOGRAPHICS			
BLACK	-0.077	3.571	***
HISPANIC	0.005	0.191	
AGE	0.124	13.046	***
AGE2	-0.002	10.186	***
PRESENT	0.193	10.868	***
SEPARATE	0.206	4.296	***
DIVWIDOW	0.137	4.784	***
CHILD	0.007	1.142	
HS GRAD	0.119	4.244	***
SOMECOLL	0.125	4.521	***
COLLGRAD	0.128	3.703	***
COLLPLUS	0.183	4.174	***
INDUSTRY			
AGRIMIN	-0.015	0.571	
TRANSP	0.139	5.181	***
TRADE	-0.174	7.716	***
FINANCE	-0.045	1.648	*
PROSERV	-0.112	3.642	***
PUBADM	0.257	13.693	***
OCCUPATION			
MANAGER	0.198	8.109	***
TECH	0.107	3.457	***
SALES	0.166	5.226	***
ADMIN	0.027	0.965	
CRAFT	0.135	6.680	***
OPLABOR	0.018	0.815	
WORKPTC	-0.305	15.195	***
MILITARY			
ALLVET	-0.017	1.180	
INTERCEPT	7.208	48.499	***
ADJ R-SQUARE	0.3288		
F-VALUE	130.945 ***		
N	6897		

*Significant at .10 level; ** Significant at .05 level; ***Significant at .01 level

The earnings model in Table 9 examines the veteran variable decomposed into the four service branches to determine their separate effects on the earnings of veterans.

In each of the three basic models, Army veterans experienced an earnings penalty. Each coefficient was negative and tested significant at the .01 level. When compared to their nonveteran counterparts and veterans from another service branches, Army veterans earned 5.6, 7.1, and 5.9 percent lower hourly wage rates, weekly income, and annual salaries respectively. These results are consistent with those in Miller (1991) who found Army veterans experienced an 8 percent penalty in both weekly and annual incomes. Hirsch and Mehay (1997) also found enlisted Army veterans experienced substantial wage disadvantages. None of earnings models produce statistically significant coefficients for Navy veterans. Air Force veterans received a 3.1 percent hourly wage rate advantage over nonveterans and veterans from the other services. No statistically significant results were found in the weekly or yearly income models for Air Force veterans. Miller (1991) found Air Force veterans experienced premiums of 4 percent in weekly and annual income. Hirsch and Mehay (1991) found a substantial premium of 14.76 percent in the wage rate for Air Force veterans. In this model, Marine Corps veterans received premiums of 7, 8.9, and 7.5 percent in hourly wage rates, weekly income, and yearly earnings respectively. Miller (1991) also found Marine Corps veterans received substantial returns in annual and weekly incomes of 14 and 11 percent respectively.

Table 9. OLS Regressions (Sample: Male/All Reserves)

Log WAGE

VARIABLE	COEFFICIENT	T-STAT
DEMOGRAPHICS		
BLACK	-0.016	0.849
HISPANIC	0.072	3.483 ***
AGE	0.059	7.736 ***
AGE2	-0.001	4.689 ***
PRESENT	0.064	4.273 ***
SEPARATE	0.062	1.558
DIVWIDOW	-0.003	0.104
CHILD	0.008	1.455
HS GRAD	0.08	3.442 ***
SOMECOLL	0.163	7.069 ***
COLLGRAD	0.192	6.585 ***
COLLPLUS	0.228	6.124 ***
INDUSTRY		
AGRIMIN	0.003	0.117
TRANSP	0.105	4.570 ***
TRADE	-0.148	7.812 ***
FINANCE	-0.06	2.600 ***
PROSERV	-0.085	3.226 ***
PUBADM	0.212	13.037 ***
OCCUPATION		
MANAGER	0.145	6.945 ***
TECH	0.131	4.93 ***
SALES	0.041	1.552
ADMIN	0.046	1.941 *
CRAFT	0.163	9.457 ***
OPLABOR	-0.004	0.212
WORKPTC	-0.101	5.999 ***
MILITARY		
ARMYVET	-0.056	3.463 ***
NAVYVET	0.028	1.149
AFVET	0.031	1.653 *
MCVET	0.070	2.314 **
INTERCEPT	0.822	6.651 ***
ADJ R-SQUARE	0.241	
F-VALUE	82.670 ***	
N	7480	

Log INCWKLY

VARIABLE	COEFFICIENT	T-STAT
DEMOGRAPHICS		
BLACK	-0.050	2.390 **
HISPANIC	0.065	2.751 ***
AGE	0.078	8.572 ***
AGE2	-0.001	5.789 ***
PRESENT	0.110	6.370 ***
SEPARATE	0.178	3.914 ***
DIVWIDOW	0.024	0.868
CHILD	0.012	1.846 *
HS GRAD	0.082	3.047 ***
SOMECOLL	0.132	4.987 ***
COLLGRAD	0.142	4.226 ***
COLLPLUS	0.172	4.002 ***
INDUSTRY		
AGRIMIN	0.063	2.512 **
TRANSP	0.106	3.995 ***
TRADE	-0.187	8.575 ***
FINANCE	-0.061	2.320 **
PROSERV	-0.110	3.612 ***
PUBADM	0.198	10.606 ***
OCCUPATION		
MANAGER	0.195	8.125 ***
TECH	0.119	3.892 ***
SALES	0.111	3.630 ***
ADMIN	-0.002	0.070
CRAFT	0.155	7.858 ***
OPLABOR	0.011	0.527
WORKPTC	-0.291	15.135 ***
MILITARY		
ARMYVET	-0.071	3.829 ***
NAVYVET	0.018	0.634
AFVET	0.010	0.448
MCVET	0.089	2.543 **
INTERCEPT	4.216	29.734 ***
ADJ R-SQUARE	0.265	
F-VALUE	95.044 ***	
N	7552	

Log INCYRLY

VARIABLE	COEFFICIENT	T-STAT
DEMOGRAPHICS		
BLACK	-0.073	3.350 ***
HISPANIC	0.002	0.072
AGE	0.123	12.999 ***
AGE2	-0.002	10.108 ***
PRESENT	0.192	10.814 ***
SEPARATE	0.203	4.242 ***
DIVWIDOW	0.134	4.692 ***
CHILD	0.007	1.115
HS GRAD	0.117	4.170 ***
SOMECOLL	0.120	4.345 ***
COLLGRAD	0.123	3.563 ***
COLLPLUS	0.180	4.114 ***
INDUSTRY		
AGRIMIN	-0.013	0.487
TRANSP	0.135	5.039 ***
TRADE	-0.173	7.678 ***
FINANCE	-0.045	1.649 *
PROSERV	-0.111	3.615 ***
PUBADM	0.252	13.369 ***
OCCUPATION		
MANAGER	0.195	8.000 ***
TECH	0.105	3.390 ***
SALES	0.160	5.047 ***
ADMIN	0.026	0.927
CRAFT	0.133	6.539 ***
OPLABOR	0.019	0.863
WORKPTC	-0.304	15.175 ***
MILITARY		
ARMYVET	-0.059	3.108 ***
NAVYVET	-0.021	0.762
AFVET	0.023	1.189
MCVET	0.075	2.121 **
INTERCEPT	7.229	48.885 ***
ADJ R-SQUARE	0.3303	
F-VALUE	118.274 ***	
N	6897	

*Significant at .10 level; ** Significant at .05 level; ***Significant at .01 level

The version of the earnings model in Table 10 examines the two military variables ALLVET and TRANSFER and their effect on the post-service earnings of veterans. In this model, the results of veterans status are different from the earnings model in Table 8. A negative wage differential of approximately 3 percent exists in the weekly and yearly incomes of veterans. No statistically significant findings were noted for hourly wage rates. These results are similar to those in Miller (1991), who found penalties of 2 and 3 percent for weekly and annual income.

The coefficient of TRANSFER was large, positive, and highly significant in each of the three models. These results indicate a strong, positive relationship between the transferability of military acquired occupational skills and higher post-service earnings of veterans. Miller (1991) also found that veterans with transferable occupations earned 5 percent higher annual earnings and 6 percent higher weekly incomes than their nonveteran counterparts. Similar conclusions were reached by Hirsch and Mehay (1997), who found positive returns to the hourly wage rates of veterans who were working in civilian jobs similar to their military occupations.

Table 10. OLS Regressions (Sample: Male/All Reserves)

	Log WAGE		Log INCWKLY		Log INCYRLY	
VARIABLE	COEFFICIENT	T-STAT	COEFFICIENT	T-STAT	COEFFICIENT	T-STAT
DEMOGRAPHICS						
BLACK	-0.022	1.225	-0.057	2.739 ***	-0.079	3.641 ***
HISPANIC	0.073	3.495 ***	0.066	2.772 ***	0.004	0.149
AGE	0.058	7.264 ***	0.077	8.419 ***	0.123	12.963 ***
AGE2	-0.001	4.606 ***	-0.001	5.666 ***	-0.002	10.102 ***
PRESENT	0.066	4.344 ***	0.111	6.416 ***	0.192	10.857 ***
SEPARATE	0.063	1.581	0.180	3.967 ***	0.208	4.347 ***
DIVWIDOW	-0.002	0.050	0.025	0.902	0.137	4.792 ***
CHILD	0.008	1.475	0.012	1.901 *	0.007	1.170
HS GRAD	0.081	3.481 ***	0.082	3.071 ***	0.119	4.226 ***
SOMECOLL	0.167	7.267 ***	0.136	5.139 ***	0.125	4.524 ***
COLLGRAD	0.197	6.777 ***	0.147	4.384 ***	0.129	3.733 ***
COLLPLUS	0.230	6.167 ***	0.173	4.032 ***	0.183	4.179 ***
INDUSTRY						
AGRIMIN	0.001	0.043	0.061	2.467 **	-0.015	0.568
TRANSP	0.102	4.431 ***	0.100	3.767 ***	0.132	4.925 ***
TRADE	-0.150	7.928 ***	-0.190	8.684 ***	-0.174	7.734 ***
FINANCE	-0.062	2.699 ***	-0.064	2.417 **	-0.045	1.670 *
PROSERV	-0.090	3.404 ***	-0.117	3.849 ***	-0.117	3.813 ***
PUBADM	0.215	13.276 ***	0.200	10.756 ***	0.256	13.645 ***
OCCUPATION						
MANAGER	0.151	7.241 ***	0.202	8.420 ***	0.200	8.207 ***
TECH	0.136	5.118 ***	0.124	4.051 ***	0.108	3.491 ***
SALES	0.052	1.972 **	0.125	4.088 ***	0.171	5.408 ***
ADMIN	0.054	2.305 **	0.008	0.308	0.032	1.155
CRAFT	0.168	9.769 ***	0.161	8.143 ***	0.137	6.784 ***
OPLABOR	0.001	0.031	0.018	0.830	0.024	1.081
WORKPTC	-0.101	6.014 ***	-0.292	15.186 ***	-0.305	15.223 ***
MILITARY						
ALLVET	-0.014	1.114	-0.029	2.030 **	-0.028	1.906 *
TRANSFER	0.085	4.441 ***	0.124	5.621 ***	0.086	3.903 ***
INTERCEPT	0.821	6.611 ***	4.220	29.667 ***	7.216	48.598 ***
ADJ R-SQUARE	0.240		0.2661		0.3302	
F-VALUE	88.499 ***		102.440 ***		126.920 ***	
N	7480		7552		6897	

*Significant at .10 level; ** Significant at .05 level; ***Significant at .01 level

In Table 11, the ALLVET variable is used in conjunction with each of the separate service transfer variables. The coefficient values for ALLVET are similar those in Table 10. Having a veteran status creates earning penalties of 3.3 and 3.9 percent in weekly and yearly incomes, respectively. Veterans status had no statistically significant impact on hourly wages.

The transfer variable had no effect on the earnings of Army veterans. Bryant and Wilhite (1990) reached a similar conclusion. They concluded that service in the Army depresses civilian wages and training obtained in the Army does little to offset the differential. In this analysis, Navy veterans with transferable occupations experienced substantial earnings advantages in all three models. Navy veterans received premiums of 20.3, 25.3, and 15 percent in hourly wage rates, weekly income, and annual income, respectively. Miller (1991) also found similar returns to earnings for Navy veterans working in civilian jobs that were similar to their previous military occupations. Air Force veterans also received substantial earnings premiums in all three models, the results of which are consistent with those in Miller (1991), Bryant and Wilhite (1990). Marine Corps veterans with transferable job skills to the private sector received large earnings premiums in all three models. The Marine Corps finding is similar to that in Miller (1991).

Table 11. OLS Regressions (Sample: Male/All Reserves)

VARIABLE	Log WAGE COEFFICIENT	T-STAT	Log INCWKLY COEFFICIENT	T-STAT	Log INCYRLY COEFFICIENT	T-STAT
DEMOGRAPHICS						
BLACK	-0.020	1.077	-0.053	2.555 **	-0.077	3.524 ***
HISPANIC	0.073	3.543 ***	0.067	2.823 ***	0.003	0.129
AGE	0.060	7.349 ***	0.078	8.533 ***	0.124	13.041 ***
AGE2	-0.001	4.685 ***	-0.001	5.769 ***	-0.002	10.157 ***
PRESENT	0.065	4.292 ***	0.110	6.355 ***	0.191	10.808 ***
SEPARATE	0.062	1.551	0.178	3.915 ***	0.205	4.302 ***
DIVWIDOW	0.000	0.009	0.026	0.933	0.136	4.757 ***
CHILD	0.008	1.468	0.012	1.886 *	0.007	1.157
HS GRAD	0.083	3.552 ***	0.084	3.151 ***	0.120	4.290 ***
SOMECOLL	0.168	7.301 ***	0.137	5.169 ***	0.126	4.551 ***
COLLGRAD	0.198	6.782 ***	0.147	4.380 ***	0.128	3.738 ***
COLLPLUS	0.231	6.200 ***	0.174	4.054 ***	0.181	4.141 ***
INDUSTRY						
AGRIMIN	0.001	0.063	0.062	2.489 **	-0.014	0.531
TRANSP	0.101	4.391 ***	0.099	3.744 ***	0.127	4.726 ***
TRADE	-0.150	7.880 ***	-0.188	8.618 ***	-0.173	7.678 ***
FINANCE	-0.061	2.679 ***	-0.063	2.384 **	-0.046	1.682 *
PROSERV	-0.087	3.301 ***	-0.112	3.705 ***	-0.114	3.702 ***
PUBADM	0.215	13.320 ***	0.201	10.801 ***	0.256	13.628 ***
OCCUPATION						
MANAGER	0.147	7.060 ***	0.196	8.191 ***	0.196	8.088 ***
TECH	0.133	5.001 ***	0.120	3.925 ***	0.106	3.447 ***
SALES	0.047	1.786 *	0.118	3.854 ***	0.168	5.319 ***
ADMIN	0.050	2.112 **	0.002	0.075	0.031	1.118
CRAFT	0.164	9.544 ***	0.156	7.889 ***	0.136	6.723 ***
OPLABOR	-0.002	0.118	0.013	0.639	0.024	1.097
WORKPTC	-0.100	5.983 ***	-0.292	15.162 ***	-0.305	15.217 ***
MILITARY						
ALLVET	-0.017	1.364	-0.033	2.236 **	-0.039	2.587 ***
ARMYTRAN	0.003	0.060	-0.001	0.008	0.040	0.827
NAVYTRAN	0.203	4.416 ***	0.253	4.803 ***	0.150	2.942 ***
AFTRAN	0.084	2.176 **	0.124	2.783 ***	0.174	3.970 ***
MCTRAN	0.124	1.718 *	0.187	2.235 **	0.259	3.142 ***
INTERCEPT	0.816	6.570 ***	4.212	29.604 ***	7.209	48.598 ***
ADJ R-SQUARE	0.240		0.266		0.332	
F-VALUE	79.881 ***		92.258 ***		115.006 ***	
N	7480		7552		6897	

*Significant at .10 level; ** Significant at .05 level; ***Significant at .01 level

44

No new variables were introduced into the earnings model in Table 12. The model included the combination of military variables, TRANSFER, ARMYVET, NAVYVET, AFVET, and MCVET.

The TRANSFER variable was positive, large, and tested significant at the .01 level in each of the three models. Similar results for the TRANSFER variable were found in Table 10.

The effects of being an Army veteran on earnings are the same as in Table 9; negative, large, and significant at the .01 level. As in Table 9, no significant findings were noted in any of the three models for Navy or Air Force veterans. Marine Corps veterans experienced a premium in hourly wages, weekly income, and annual earnings, the same results were noted in Table 9.

Table 12. OLS Regressions (Sample: Male/All Reserves)

VARIABLE	Log WAGE COEFFICIENT	Log WAGE T-STAT	Log INCWKLY COEFFICIENT	Log INCWKLY T-STAT	Log INCYRLY COEFFICIENT	Log INCYRLY T-STAT
DEMOGRAPHICS						
BLACK	-0.017	0.922	-0.052	2.488 **	-0.075	3.434 ***
HISPANIC	0.071	3.419 ***	0.064	2.678 ***	0.001	0.034
AGE	0.057	7.234 ***	0.076	8.387 ***	0.122	12.883 ***
AGE2	-0.001	4.555 ***	-0.001	5.612 ***	-0.001	9.996 ***
PRESENT	0.064	4.246 ***	0.110	6.339 ***	0.191	10.811 ***
SEPARATE	0.063	1.571	0.179	3.944 ***	0.204	4.269 ***
DIVWIDOW	-0.003	0.107	0.024	0.867	0.134	4.691 ***
CHILD	0.008	1.497	0.012	1.902 *	0.007	1.133
HS GRAD	0.079	3.396 ***	0.081	3.011 ***	0.116	4.148 ***
SOMECOLL	0.163	7.066 ***	0.132	4.982 ***	0.120	4.345 ***
COLLGRAD	0.193	6.626 ***	0.143	4.273 ***	0.124	3.597 ***
COLLPLUS	0.228	6.123 ***	0.172	4.002 ***	0.180	4.113 ***
INDUSTRY						
AGRIMIN	0.003	0.128	0.063	2.533 **	-0.013	0.489
TRANSP	0.099	4.304 ***	0.097	3.657 ***	0.129	4.814 ***
TRADE	-0.149	7.847 ***	-0.188	8.624 ***	-0.174	7.705 ***
FINANCE	-0.061	2.665 ***	-0.063	2.401 **	-0.045	1.677 *
PROSERV	-0.090	3.390 ***	-0.116	3.838 ***	-0.116	3.771 ***
PUBADM	0.211	12.997 ***	0.197	10.552 ***	0.251	13.323 ***
OCCUPATION						
MANAGER	0.148	7.099 ***	0.199	8.321 ***	0.197	8.101 ***
TECH	0.133	4.998 ***	0.121	3.974 ***	0.106	3.434 ***
SALES	0.047	1.767 *	0.119	3.911 ***	0.166	5.232 ***
ADMIN	0.051	2.175 **	0.006	0.228	0.031	1.118
CRAFT	0.165	9.582 ***	0.159	8.025 ***	0.135	6.656 ***
OPLABOR	0.001	0.067	0.019	0.883	0.024	1.112
WORKPTC	-0.101	6.008 ***	-0.292	15.172 ***	-0.304	15.196 ***
MILITARY						
TRANSFER	0.078	4.057 ***	0.117	5.299 ***	0.080	3.630 ***
ARMYVET	-0.060	3.728 ***	-0.077	4.168 ***	-0.063	3.347 ***
NAVYVET	0.013	0.529	-0.005	0.160	-0.038	1.340
AFVET	0.021	1.100	-0.006	0.255	0.015	0.680
MCVET	0.063	2.066 **	0.078	2.229 **	0.067	1.881 *
INTERCEPT	0.835	6.758 ***	4.235	29.916 ***	7.241	48.995 ***
ADJ R-SQUARE	0.242		0.268		0.3314	
F-VALUE	80.629 ***		93.143 ***		114.974 ***	
N	7480		7552		6897	

*Significant at .10 level; ** Significant at .05 level; ***Significant at .01 level

46

Table 13 contains the final version of the earnings model that examines the effect of ALLVET and includes new variables Length of Service and Length of Service Squared.

No significant findings were noted for the ALLVET variable in any of models. These results are consistent with the models in Tables 8, 10 and 11.

In both the hourly wage and yearly income models, the Length of Service coefficient was negative and very small, and did not test significant at any acceptable level. In all cases, the Length of Service Squared coefficient was essentially zero, and was also statistically insignificant.

Table 13. OLS Regressions (Sample: Male/All Reserves)

VARIABLE	Log WAGE COEFFICIENT	Log WAGE T-STAT		Log INCWKLY COEFFICIENT	Log INCWKLY T-STAT		Log INCYRLY COEFFICIENT	Log INCYRLY T-STAT	
DEMOGRAPHICS									
BLACK	-0.022	1.192		-0.056	2.673	***	-0.078	3.566	***
HISPANIC	0.074	3.546	***	0.068	2.841	***	0.005	0.198	
AGE	0.059	7.401	***	0.078	8.533	***	0.125	13.111	***
AGE2	-0.001	4.750	***	-0.001	5.790	***	-0.002	10.245	***
PRESENT	0.066	4.397	***	0.112	6.446	***	0.194	10.924	***
SEPARATE	0.061	1.531		0.178	3.902	***	0.206	4.297	***
DIVWIDOW	-0.001	0.026		0.025	0.895		0.138	4.815	***
CHILD	0.008	1.397		0.011	1.832	*	0.007	1.112	
HS GRAD	0.082	3.501	***	0.083	3.109	***	0.118	4.218	***
SOMECOLL	0.168	7.285	***	0.136	5.150	***	0.125	4.526	***
COLLGRAD	0.197	6.735	***	0.146	4.350	***	0.126	3.661	***
COLLPLUS	0.231	6.177	***	0.173	4.031	***	0.182	4.150	***
INDUSTRY									
AGRIMIN	0.001	0.025		0.061	2.441	**	-0.015	0.580	
TRANSP	0.108	4.700	***	0.109	4.136	***	0.138	5.166	***
TRADE	-0.150	7.906	***	-0.189	8.645	***	-0.174	7.724	***
FINANCE	-0.061	2.651	***	-0.062	2.346	**	-0.045	1.674	*
PROSERV	-0.086	3.244	***	-0.110	3.602	***	-0.113	3.675	***
PUBADM	0.216	13.322	***	0.201	10.813	***	0.258	13.715	***
OCCUPATION									
MANAGER	0.147	7.061	***	0.197	8.223	***	0.198	8.127	***
TECH	0.135	5.076	***	0.122	3.982	***	0.108	3.500	***
SALES	0.046	1.746	*	0.116	3.812	***	0.166	5.234	***
ADMIN	0.049	2.074	**	0.000	0.014		0.028	1.004	
CRAFT	0.166	9.642	***	0.158	7.998	***	0.135	6.648	***
OPLABOR	-0.005	0.273		0.010	0.459		0.018	0.800	
WORKPTC	-0.101	6.000	***	-0.292	15.135	***	-0.305	15.196	***
MILITARY									
ALLVET	0.007	0.288		-0.018	0.635		0.021	0.729	
LOS	-0.004	0.637		0.001	0.120		-0.010	1.554	
LOS2	0.000	1.041		0.000	0.035		0.000	1.403	
INTERCEPT	0.806	6.466	***	4.207	29.436	***	7.193	48.295	***
ADJ R-SQUARE	0.238			0.263			0.329		
F-VALUE	84.464 ***			97.233 ***			121.686 ***		
N	7480			7552			6897		

*Significant at .10 level; ** Significant at .05 level; ***Significant at .01 level

C. SUMMARY

This analysis found a small overall negative effect of military service on the post-service earnings of veterans. The same conclusion was reached by Miller (1991) using the 1986 RCS. When the services were examined separately, Army veterans were the only group who experienced an earnings penalty. A similar conclusion on Army veterans was reached by Hirsch and Mehay (1997). Service in the Navy generally had no effect on veterans' earnings. Air Force and Marine Corps veterans were the only groups to receive an earnings premium.

Skill transferability had a large and positive effect on veterans' earnings. When transferability was examined separately by service branches, Army veterans with transferable occupations experienced no earnings differentials. A similar conclusion was reached Bryant and Wilhite (1990) who found that service in the Army depressed veterans' wages and training had little offsetting effect. In this analysis, Navy, Air Force, and Marine Corps veterans with transferable occupations all received earnings premiums. A slightly different conclusion was reached by Bryant and Wilhite (1990) who found that service in the Marine Corps had a negative effect on veterans' earnings with training providing little mitigating effect. Finally, length of service was not significant in any of the earnings models.

V. DATA ANALYSIS AND PRESENTATION: FEMALE RESERVISTS

A. INTRODUCTION

This chapter analyzes the effect of military service on the post-service earnings of female veterans. The focus of this analysis is to compare only female veterans (reservists with two or more years active service) and nonveterans (reservists with less than two years of active service) exclusively.

B. DESCRIPTIVE STATISTICS

Table 14 presents the descriptive statistics of the samples used for each of the three basic earnings models. The same samples are used throughout this chapter and consist of female reservists from the AVF period who met the criteria described in Chapter III. The average earnings found in the models were $11.25, $469.59, and $19,650.27 for hourly wage rates, weekly income, and annual earnings, respectively. Black females made up 24 percent of the sample and Hispanics 7 percent. The average age of all the reservists was 31.5. Only 39 percent were married and the average number of children was .8. Virtually all (98 percent) of the females had a high school education or higher; 29 percent of the reservists worked in the public administration industry, significantly more than any other single industry; 32 percent were employed in administrative occupations; 83 percent worked in full-time civilian jobs. Veterans made up 36 percent of the female reservists and had an average length of service of 5.05 years; 21 percent of veterans had transferable occupations. Female Navy veterans had the largest transfer rate of 30 percent. Army and Air Force veterans each had 20 percent transfer rates and the Marine Corps veterans were slightly lower at 19 percent. Of note, the transfer rates for veterans

were computed separately and are not included in Table 14.

Table 14. Descriptive Statistics of Earnings Models

Hourly Wage Model (N=2819)

VARIABLES	MEAN	STD DEV
EARNINGS		
WAGE RATE	11.25	8.71
DEMOGRAPHICS		
BLACK	0.24	0.43
HISPANIC	0.07	0.26
CHILD	0.80	1.06
AGE	31.46	7.24
PRESENT	0.39	0.49
SEPARATE	0.03	0.18
DIVWIDOW	0.20	0.40
HSGRAD	0.19	0.39
SOMECOLL	0.59	0.49
COLLGRAD	0.13	0.33
COLLPLUS	0.07	0.26
INDUSTRY		
AGRIMIN	0.02	0.15
TRANSP	0.03	0.18
TRADE	0.12	0.33
FINANCE	0.10	0.30
PROSERV	0.17	0.37
PUBADM	0.29	0.46
OCCUPATION		
MANAGER	0.24	0.43
TECH	0.09	0.29
SALES	0.09	0.28
ADMIN	0.32	0.47
CRAFT	0.04	0.19
OPLABOR	0.06	0.24
WORKPTC	0.17	0.38
MILITARY		
ALLVET *	0.36	0.48
ARMYVET	0.11	0.32
NAVYVET	0.05	0.21
AFVET	0.12	0.33
MCVET	0.01	0.13
TRANSFER *	0.11	0.31
ARMYTRAN	0.02	0.15
NAVYTRAN	0.01	0.12
AFTRAN	0.02	0.15
MCTRAN	0.00	0.059
LOS	1.78	2.93

Weekly Income Model (N=2851)

VARIABLES	MEAN	STD DEV
EARNINGS		
INCWEEKLY	469.59	540.94
DEMOGRAPHICS		
BLACK	0.24	0.43
HISPANIC	0.07	0.26
CHILD	0.79	1.06
AGE	31.46	7.24
PRESENT	0.39	0.49
SEPARATE	0.03	0.18
DIVWIDOW	0.20	0.40
HSGRAD	0.19	0.39
SOMECOLL	0.59	0.49
COLLGRAD	0.13	0.33
COLLPLUS	0.07	0.26
INDUSTRY		
AGRIMIN	0.02	0.15
TRANSP	0.03	0.18
TRADE	0.12	0.33
FINANCE	0.1	0.29
PROSERV	0.17	0.37
PUBADM	0.29	0.46
OCCUPATION		
MANAGER	0.24	0.43
TECH	0.09	0.29
SALES	0.09	0.28
ADMIN	0.32	0.46
CRAFT	0.04	0.19
OPLABOR	0.06	0.23
WORKPTC	0.17	0.38
MILITARY		
ALLVET *	0.36	0.48
ARMYVET	0.11	0.32
NAVYVET	0.05	0.21
AFVET	0.12	0.33
MCVET	0.02	0.13
TRANSFER *	0.11	0.31
ARMYTRAN	0.02	0.15
NAVYTRAN	0.01	0.12
AFTRAN	0.02	0.15
MCTRAN	0.003	0.059
LOS	1.79	2.93

*Because of different definitions in variables, the sum of ARMYVET, NAVYVET, AFVET, and MCVET does not total ALLVET. A similar situation exists for the transfer variables.

Table 14. (Continued) Descriptive Statistics of Earnings Models

Yearly Income Model (N=2505)

VARIABLES	MEAN	STD DEV
EARNINGS		
INCYRLY	19650.27	11087.00
DEMOGRAPHICS		
BLACK	0.23	0.42
HISPANIC	0.07	0.26
CHILD	0.82	1.07
AGE	31.81	7.11
PRESENT	0.40	0.49
SEPARATE	0.04	0.18
DIVWIDOW	0.20	0.40
HSGRAD	0.18	0.38
SOMECOLL	0.59	0.49
COLLGRAD	0.13	0.34
COLLPLUS	0.08	0.26
INDUSTRY		
AGRIMIN	0.02	0.15
TRANSP	0.04	0.19
TRADE	0.11	0.31
FINANCE	0.10	0.30
PROSERV	0.16	0.37
PUBADM	0.31	0.46
OCCUPATION		
MANAGER	0.26	0.44
TECH	0.10	0.30
SALES	0.08	0.27
ADMIN	0.32	0.47
CRAFT	0.04	0.20
OPLABOR	0.05	0.23
WORKPTC	0.16	0.37
MILITARY		
ALLVET *	0.36	0.48
ARMYVET	0.11	0.31
NAVYVET	0.05	0.21
AFVET	0.13	0.34
MCVET	0.02	0.13
TRANSFER *	0.11	0.31
ARMYTRAN	0.02	0.15
NAVYTRAN	0.01	0.11
AFTRAN	0.03	0.16
MCTRAN	0.003	0.06
LOS	1.83	2.96

*Because of different definitions in variables, the sum of ARMYVET, NAVYVET, AFVET, and MCVET does not total ALLVET. A similar situation exists for the transfer variables.

C. MULTIVARIATE ANALYSIS

Results from estimating the earnings models are presented in Tables 15-20. For comparison purposes, each table contains the three basic earnings models: hourly wage, weekly income, and yearly income. Each table contains a specific version of the basic earnings model (each defined by various military variables). To avoid repetitive discussions, a single compilation of common findings for demographic, industry, and occupation variables is provided in the first part of the discussion.

The high adjusted R^2 values for all the earnings models indicate they provided a reasonable explanation for the variances in reservists' earnings. Of the three basic earnings models, Log INCYRLY provided the best fit with an adjusted R^2 value of .326.

Black and Hispanic reservists were compared to white reservists in each of the six specific earnings models. In the hourly wage and weekly income models, blacks experienced earnings premiums, but there was no significant difference in the annual income models. On average blacks earned 7.5 percent higher hourly wage rates and 8.6 percent higher weekly income than whites. Hispanics out-earned white and black reservists in all hourly and weekly income models with no significant differences for yearly income. Hispanics averaged nearly 14 percent higher hourly wages and 16.6 percent higher weekly income than white reservists. These findings support those of Mehay and Hirsch (1996), who found that female non-white veterans have sizable wage advantages over white non-veterans.

In every model each additional year of age had a positive effect on reservists' earnings. The average premiums received were 6, 9, and 12 percent for hourly wage rates, weekly

55

earnings, and yearly income, respectively; very similar to the results for male reservists. The age squared variable was negative and statistically significant in all cases indicating that reservists' earnings would continue to rise until a certain age, level off, then decline. These findings are consistent with those in similar studies on male veterans (Bryant and Wilhite, 1990). Surprisingly, being married, separated, or divorced or widowed had no significant impact on the reservists' earnings.

Reservists with children experienced an earnings penalty of 4.6 percent in annual income. No significant earnings differences were noted in the hourly wage rates or weekly incomes. Mehay and Hirsch (1996), using 1986 RCS data, also found that female reservists received an earnings penalty for having children. Specifically, they found veterans received 3.6 percent lower hourly wages than nonveterans.

In this thesis, education was categorized into four separate levels; high school graduate, some college, college graduate, and college plus. Each education variable was compared against the base of a reservist who was a non-high school graduate. In all cases, having a high school education or "some college" did not significantly impact reservists' earnings. Reservists with a four-year college degree received substantial earnings premiums of 19 percent higher hourly wages and 13.7 percent higher annual incomes. Reservists whose education went beyond a four-year degree experienced the highest earnings premiums of 23, 21, and 29 percent in hourly wages, weekly income, and annual income, respectively. Mehay and Hirsch (1996) also found a positive relationship between earnings and education.

Each industry variable used in the earnings models was compared to the base industry manufacturing. In all but one case, there were no earnings differentials noted for reservists working in agriculture or mining. No significant earnings differentials were noted in any of the models for reservists working in the financial or professional services industries. In every case, working in the transportation industry provided reservists with an earnings premium. On average transportation workers earned 10, 18, and 11 percent higher hourly wage rates, weekly income, and yearly income, respectively. Reservists working in the trade industry suffered an earnings penalty in every model. Trade workers received 20 percent lower hourly wage rates and weekly income, and 14 percent lower annual income. Like the transportation industry, working in public administration had a large, positive effect on reservists' earnings. On average, public administration workers earned premiums of 9, 13.4, and 19.4 percent in hourly wage rates, weekly income, and yearly income, respectively.

The occupation variables included in the earnings models were all compared to the base occupation services. In every earnings model, reservists working as managers, technicians, and in crafts had large earnings premiums. Reservists working in administrative jobs experienced an average earnings premium of 9 percent in all yearly income models and 5 percent in hourly wage rates; no significant earnings differentials were noted for the weekly income models. There were no significant findings in any of the earnings models for reservists working in sales or laborer type jobs. Reservists working in part-time civilian jobs suffered large, significant earnings penalties when compared to reservists with full-time jobs. Part-time workers received earnings penalties

of 8.9, 31, and 38.5 percent in hourly wage rates, weekly income, and annual earnings, respectively.

The version of the earnings model in Table 15 was specifically designed to capture the individual effect of veteran status on the post-service earnings of female veterans. Having a veterans status produced an earnings penalty of 5.6 percent in annual income only. The coefficients for the ALLVET varaible were also negative in the hourly wage and weekly income models, but were statistically insignificant   Similar conclusions were reached by Mehay and Hirsch (1996) using the 1986 RCS data.

The version of the earnings model in Table 16 includes the veteran variable decomposed into the four service branches to determine their separate effects on veterans earnings. The variables include ARMYVET, NAVYVET, AFVET, and MCVET. No statiscally significant earnings differentials were noted for Army, Air Force, or Marine Corps veterans in any of the models. Navy female veterans did experience an earnings penalty of 9.9 percent in annual income, but no statistically significant differences were noted in the hourly wage rate or weekly income models.

The version of the earnings model in Table 17 contains the military variables ALLVET and TRANSFER. The values for the ALLVET coefficients were very similar to those in Table 15. An earnings penalty of 7.4 percent in annual income was experienced by reservists with a veterans status. No earnings differentials were noted for the hourly wage rates or weekly income models. In all three models, the coefficient of the TRANSFER variable was large, positive and statistically significant. Veterans with transferable occupations earned premiums of 6, 13.6, and 11.6 percent in hourly wages, weekly

58

income, and yearly income, respectively.

Table 15. OLS Regressions (Sample: Female/AllReserves)

Log WAGE

VARIABLE	COEFFICIENT	T-STAT
DEMOGRAPHICS		
BLACK	0.074	3.169 ***
HISPANIC	0.138	3.711 ***
AGE	0.059	5.378 ***
AGE2	-0.001	3.696 ***
PRESENT	0.009	0.355
SEPARATE	0.039	0.700
DIVWIDOW	-0.003	0.114
CHILD	-0.003	0.298
HS GRAD	0.049	0.761
SOMECOLL	0.091	1.486
COLLGRAD	0.193	2.898 ***
COLLPLUS	0.235	3.314 ***
INDUSTRY		
AGRIMIN	-0.092	1.359
TRANSP	0.098	1.794 *
TRADE	-0.200	5.303 ***
FINANCE	-0.046	1.268
PROSERV	-0.004	0.134
PUBADM	0.094	3.517 ***
OCCUPATION		
MANAGER	0.126	3.914 ***
TECH	0.207	5.180 ***
SALES	-0.035	0.801
ADMIN	0.048	1.597
CRAFT	0.185	3.313 ***
OPLABOR	0.029	0.620
WORKPTC	-0.088	3.321 ***
MILITARY		
ALLVET	-0.010	0.459
INTERCEPT	0.822	4.386 ***
ADJ R-SQUARE	0.205	
F-VALUE	28.905 ***	
N	2819	

Log INCWKLY

VARIABLE	COEFFICIENT	T-STAT
DEMOGRAPHICS		
BLACK	0.085	3.185 ***
HISPANIC	0.166	3.916 ***
AGE	0.093	7.417 ***
AGE2	-0.001	5.454 ***
PRESENT	-0.015	0.505
SEPARATE	0.017	0.261
DIVWIDOW	-0.008	0.230
CHILD	-0.016	1.395
HS GRAD	0.015	0.200
SOMECOLL	0.053	0.751
COLLGRAD	0.104	1.365
COLLPLUS	0.208	2.571 ***
INDUSTRY		
AGRIMIN	0.059	0.769
TRANSP	0.179	2.870 ***
TRADE	-0.201	4.635 ***
FINANCE	0.010	0.241
PROSERV	-0.036	1.008
PUBADM	0.134	4.391 ***
OCCUPATION		
MANAGER	0.178	4.821 ***
TECH	0.232	5.064 ***
SALES	-0.076	1.503
ADMIN	0.035	1.024
CRAFT	0.226	3.528 ***
OPLABOR	0.051	0.947
WORKPTC	-0.309	10.146 ***
MILITARY		
ALLVET	-0.010	0.414
INTERCEPT	3.884	18.066 ***
ADJ R-SQUARE	0.277	
F-VALUE	42.947 ***	
N	2850	

Log INCYRLY

VARIABLE	COEFFICIENT	T-STAT
DEMOGRAPHICS		
BLACK	-0.001	0.032
HISPANIC	0.004	0.102
AGE	0.121	9.258 ***
AGE2	-0.001	7.251 ***
PRESENT	0.015	0.490
SEPARATE	-0.045	0.700
DIVWIDOW	0.030	0.891
CHILD	-0.047	3.916 ***
HS GRAD	0.090	1.220
SOMECOLL	0.093	1.316
COLLGRAD	0.143	1.874 *
COLLPLUS	0.292	3.567 ***
INDUSTRY		
AGRIMIN	-0.050	0.630
TRANSP	0.111	1.788 *
TRADE	-0.141	3.083 ***
FINANCE	0.014	0.324
PROSERV	-0.043	1.201
PUBADM	0.193	6.328 ***
OCCUPATION		
MANAGER	0.164	4.361 ***
TECH	0.153	3.316 ***
SALES	-0.012	0.218
ADMIN	0.092	2.591 ***
CRAFT	0.259	4.191 ***
OPLABOR	-0.026	0.464
WORKPTC	-0.384	12.137 ***
MILITARY		
ALLVET	-0.056	2.295 **
INTERCEPT	7.159	31.662 ***
ADJ R-SQUARE	0.325	
F-VALUE	47.333 ***	
N	2504	

*Significant at .10 level; ** Significant at .05 level; ***Significant at .01 level

Table 16. OLS Regressions (Sample: Female/All Reserves)

VARIABLE	Log WAGE COEFFICIENT	Log WAGE T-STAT	Log INCWKLY COEFFICIENT	Log INCWKLY T-STAT	Log INCYRLY COEFFICIENT	Log INCYRLY T-STAT
DEMOGRAPHICS						
BLACK	0.077	3.274 ***	0.087	3.261 ***	0.002	0.087
HISPANIC	0.139	3.738 ***	0.166	3.926 ***	0.005	0.114
AGE	0.054	4.986 ***	0.089	7.129 ***	0.117	8.976 ***
AGE2	-0.001	3.286 ***	-0.001	5.146 ***	-0.001	6.945 ***
PRESENT	0.006	0.240	-0.018	0.604	0.011	0.363
SEPARATE	0.035	0.639	0.013	0.200	-0.051	0.800
DIVWIDOW	-0.008	0.264	-0.012	0.363	0.025	0.746
CHILD	-0.002	0.238	-0.016	1.356	-0.046	3.870 ***
HS GRAD	0.045	0.703	0.013	0.173	0.090	1.212
SOMECOLL	0.085	1.385	0.048	0.683	0.089	1.251
COLLGRAD	0.187	2.819 ***	0.099	1.306	0.137	1.785 *
COLLPLUS	0.228	3.218 ***	0.203	2.497 **	0.287	3.495 ***
INDUSTRY						
AGRIMIN	-0.092	1.368	0.058	0.760	-0.051	0.638
TRANSP	0.092	1.683 *	0.175	2.792 ***	0.109	1.748 *
TRADE	-0.199	5.295 ***	-0.201	4.646 ***	-0.141	3.096 ***
FINANCE	-0.050	1.388	0.006	0.153	0.012	0.274
PROSERV	-0.004	0.144	-0.035	1.003	-0.040	1.112
PUBADM	0.090	3.386 ***	0.131	4.283 ***	0.191	6.236 ***
OCCUPATION						
MANAGER	0.128	3.995 ***	0.179	4.875 ***	0.165	4.389 ***
TECH	0.207	5.181 ***	0.232	5.063 ***	0.152	3.282 ***
SALES	-0.035	0.790	-0.076	1.497	-0.011	0.206
ADMIN	0.050	1.656 *	0.036	1.060	0.092	2.575 ***
CRAFT	0.180	3.217 ***	0.222	3.457 ***	0.253	4.084 ***
OPLABOR	0.032	0.691	0.054	1.006	-0.024	0.420
WORKPTC	-0.090	3.357 ***	-0.310	10.168 ***	-0.385	12.164 ***
MILITARY						
ARMYVET	0.023	0.749	0.022	0.607	-0.036	0.991
NAVYVET	-0.018	0.384	-0.028	0.523	-0.099	1.848 *
AFVET	0.048	1.561	0.039	1.130	-0.011	0.312
MCVET	-0.006	0.088	0.036	0.436	0.095	1.078
INTERCEPT	0.891	4.770 ***	3.944	18.398 ***	7.223	32.018 ***
ADJ R-SQUARE	0.2047		0.2765		0.3241	
F-VALUE	26.015 ***		38.556 ***		42.400 ***	
N	2819		2850		2504	

*Significant at .10 level; ** Significant at .05 level; ***Significant at .01 level

61

Table 17. OLS Regressions (Sample: Female/All Reserves)

VARIABLE	Log WAGE COEFFICIENT	Log WAGE T-STAT	Log INCWKLY COEFFICIENT	Log INCWKLY T-STAT	Log INCYRLY COEFFICIENT	Log INCYRLY T-STAT
DEMOGRAPHICS						
BLACK	0.074	3.154 ***	0.084	3.145 ***	-0.002	0.084
HISPANIC	0.137	3.690 ***	0.164	3.889 ***	0.003	0.077
AGE	0.058	5.355 ***	0.092	7.382 ***	0.121	9.231 ***
AGE2	-0.001	3.684 ***	-0.001	5.439 ***	-0.001	7.234 ***
PRESENT	0.009	0.353	-0.015	0.503	0.016	0.550
SEPARATE	0.040	0.720	0.020	0.314	-0.039	0.615
DIVWIDOW	-0.003	0.086	-0.006	0.168	0.032	0.953
CHILD	-0.004	0.355	-0.018	1.538	-0.048	4.041 ***
HS GRAD	0.048	0.746	0.011	0.156	0.088	1.187
SOMECOLL	0.091	1.478	0.051	0.726	0.091	1.288
COLLGRAD	0.193	2.897 ***	0.102	1.350	0.141	1.844 *
COLLPLUS	0.239	3.373 ***	0.217	2.687 ***	0.298	3.646 ***
INDUSTRY						
AGRIMIN	-0.092	1.367	0.054	0.715	-0.055	0.698
TRANSP	0.102	1.854 *	0.187	2.997 ***	0.119	1.915 *
TRADE	-0.199	5.288 ***	-0.199	4.611 ***	-0.134	3.051 ***
FINANCE	-0.045	1.244	0.012	0.291	0.016	0.377
PROSERV	-0.006	0.208	-0.041	1.153	-0.048	1.320
PUBADM	0.095	3.571 ***	0.137	4.512 ***	0.196	6.436 ***
OCCUPATION						
MANAGER	0.126	3.933 ***	0.179	4.874 ***	0.165	4.412 ***
TECH	0.201	4.996 ***	0.217	4.730 ***	0.143	3.088 ***
SALES	-0.033	0.743	-0.070	1.383	-0.006	0.115
ADMIN	0.049	1.625	0.0370	1.095	0.093	2.633 ***
CRAFT	0.183	3.276 ***	0.221	3.465 ***	0.255	4.142 ***
OPLABOR	0.033	0.715	0.061	1.145	-0.017	0.297
WORKPTC	-0.090	3.372 ***	-0.312	10.264 ***	-0.387	12.237 ***
MILITARY						
ALLVET	-0.019	0.880	-0.031	1.251	-0.074	2.957 ***
TRANSFER	0.060	1.880 *	0.136	3.709 ***	0.116	3.159 ***
INTERCEPT	0.825	4.408 ***	3.893	18.149 ***	7.166	31.748 ***
ADJ R-SQUARE	0.205		.280		0.3273	
F-VALUE	27.991 ***		42.052 ***		46.115 ***	
N	2819		2850		2504	

*Significant at .10 level; ** Significant at .05 level; ***Significant at .01 level

62

Table 18 contains the version of the earnings models that uses the variable ALLVET in conjunction with each of the separate service transfer variables. The coefficient values for the ALLVET variable were very similar to those in Tables 15 and 17. Veteran status created an earnings penalty of 8.2 percent in yearly income. No significant earnings differentials for veterans were noted in the hourly wage and weekly income models. Having a transferable occupation did not impact the earnings of Army or Marine Corps veterans in any of the three models. Air Force and Navy veterans benefited the most from having civilian careers that were similar to their military occupations, both earning sizable premiums in weekly and annual incomes. Air Force veterans received the largest premiums of 17.3 and 24.9 percent in weekly and yearly earnings, respectively.

The version of the earnings model in Table 19 does not introduce any new variables. The model uses the TRANSFER variable along with each of the separate veterans variables: ARMYVET, NAVYVET, AFVET, and MCVET. The coefficient values in Table 19 for the TRANSFER variable are similar to those in Table 17. Veterans with transferable occupations earned 12.8 and 10.6 percent higher weekly and annual incomes, respectively. Unlike the findings in Table 17, there were no differentials noted in the hourly wage model for the TRANSFER variable. Army, Air Force, and Marine Corps veterans had no earnings differentials in any of the models. Navy veterans experienced an earnings penalty of 12.1 percent in annual income when compared to non veterans and the other service branches. No earnings differentials were noted for Navy veterans in hourly wages or weekly income.

63

Table 18. OLS Regressions (Sample: Female/All Reserves)

VARIABLE	Log WAGE COEFFICIENT	Log WAGE T-STAT	Log INCWKLY COEFFICIENT	Log INCWKLY T-STAT	Log INCYRLY COEFFICIENT	Log INCYRLY T-STAT
DEMOGRAPHICS						
BLACK	0.075	3.213 ***	0.086	3.240 ***	0.003	0.100
HISPANIC	0.140	3.751 ***	0.167	3.932 ***	0.005	0.123
AGE	0.058	5.349 ***	0.092	7.368 ***	0.121	9.247 ***
AGE2	-0.001	3.667 ***	-0.001	5.403 ***	-0.001	7.225 ***
PRESENT	0.009	0.339	-0.016	0.538	0.013	0.450
SEPARATE	0.041	0.737	0.018	0.291	-0.040	0.635
DIVWIDOW	-0.004	0.141	-0.007	0.219	0.029	0.855
CHILD	-0.004	0.348	-0.017	1.462	-0.048	4.043 ***
HS GRAD	0.045	0.711	0.011	0.146	0.083	1.116
SOMECOLL	0.089	1.440	0.050	0.711	0.086	1.208
COLLGRAD	0.189	2.847 ***	0.099	1.299	0.134	1.747 *
COLLPLUS	0.232	3.265 ***	0.208	2.558 **	0.286	3.495 ***
INDUSTRY						
AGRIMIN	-0.091	1.351	0.060	0.784	-0.050	0.630
TRANSP	0.098	1.788 *	0.181	2.913 ***	0.113	1.825 *
TRADE	-0.200	5.302 ***	-0.202	4.662 ***	-0.140	3.086 ***
FINANCE	-0.047	1.307	0.008	0.200	0.010	0.242
PROSERV	-0.004	0.141	-0.039	1.091	-0.045	1.241
PUBADM	0.094	3.518 ***	0.133	4.369 ***	0.193	6.315 ***
OCCUPATION						
MANAGER	0.126	3.911 ***	0.179	4.875 ***	0.168	4.476 ***
TECH	0.204	5.090 ***	0.224	4.886 ***	0.147	3.175 ***
SALES	-0.035	0.800	-0.073	1.451	-0.008	0.141
ADMIN	0.048	1.619	0.037	1.080	0.096	2.700 ***
CRAFT	0.181	3.245 ***	0.219	3.421 ***	0.250	4.061 ***
OPLABOR	0.030	0.633	0.054	1.006	-0.020	0.355
WORKPTC	-0.088	3.300 ***	-0.309	10.125 ***	-0.382	12.088 ***
MILITARY						
ALLVET	-0.016	0.708	-0.031	1.207	-0.082	3.162 ***
ARMYTRAN	-0.028	0.419	0.054	0.711	-0.004	0.045
NAVYTRAN	0.076	0.932	0.158	1.678 *	0.190	1.939 *
AFTRAN	0.084	1.314	0.173	2.362 **	0.249	3.488 ***
MCTRAN	-0.017	0.108	0.074	0.404	0.268	1.367
INTERCEPT	0.829	4.423 ***	3.897	18.137 ***	7.171	31.789 ***
ADJ R-SQUARE	0.204		0.2778		0.3283	
F-VALUE	25.134 ***		37.551 ***		41.799 ***	
N	2819		2850		2504	

*Significant at .10 level; ** Significant at .05 level; ***Significant at .01 level

Table 19. OLS Regressions (Sample: Female/All Reserves)

VARIABLE	Log WAGE COEFFICIENT	Log WAGE T-STAT	Log INCWKLY COEFFICIENT	Log INCWKLY T-STAT	Log INCYRLY COEFFICIENT	Log INCYRLY T-STAT
DEMOGRAPHICS						
BLACK	0.076	3.263 ***	0.086	3.228 ***	0.001	0.044
HISPANIC	0.138	3.723 ***	0.165	3.908 ***	0.004	0.100
AGE	0.054	4.946 ***	0.088	7.055 ***	0.116	8.909 ***
AGE2	-0.001	3.258 ***	-0.001	5.094 ***	-0.001	6.891 ***
PRESENT	0.006	0.237	-0.018	0.605	0.012	0.414
SEPARATE	0.036	0.656	0.016	0.247	-0.047	0.732
DIVWIDOW	-0.007	0.239	-0.010	0.302	0.027	0.802
CHILD	-0.003	0.287	-0.017	1.492	-0.047	3.983 ***
HS GRAD	0.044	0.690	0.010	0.134	0.087	1.180
SOMECOLL	0.085	1.374	0.046	0.654	0.087	1.220
COLLGRAD	0.187	2.816 ***	0.098	1.288	0.134	1.752 *
COLLPLUS	0.232	3.269 ***	0.212	2.609 **	0.292	3.570 ***
INDUSTRY						
AGRIMIN	-0.093	1.377	0.054	0.075	-0.055	0.696
TRANSP	0.095	1.734 *	0.182	2.913 ***	0.116	1.869 *
TRADE	-0.199	5.273 ***	-0.199	4.606 ***	-0.139	3.050 ***
FINANCE	-0.049	1.363	0.009	0.209	0.014	0.332
PROSERV	-0.006	0.194	-0.039	1.110	-0.043	1.198
PUBADM	0.092	3.429 ***	0.134	4.39 ***	0.194	6.332 ***
OCCUPATION						
MANAGER	0.129	4.014 ***	0.181	4.930 ***	0.167	4.444 ***
TECH	0.202	5.019 ***	0.218	4.744 ***	0.142	3.068 ***
SALES	-0.032	0.736	-0.070	1.378	-0.006	0.108
ADMIN	0.050	1.687 *	0.039	1.140	0.093	2.624 ***
CRAFT	0.178	3.178 ***	0.217	3.385 ***	0.249	4.031 ***
OPLABOR	0.036	0.778	0.064	1.205	-0.015	0.259
WORKPTC	-0.091	3.407 ***	-0.313	10.290 ***	-0.388	12.259 ***
MILITARY						
TRANSFER	0.051	1.067	0.128	3.486 ***	0.106	2.898 ***
ARMYVET	0.017	0.540	-0.006	0.164	-0.049	1.330
NAVYVET	-0.029	0.633	-0.056	1.064	-0.121	2.240 **
AFVET	0.041	1.342	0.023	0.669	-0.025	0.700
MCVET	-0.014	0.192	0.018	0.213	0.080	0.912
INTERCEPT	0.897	4.802 ***	3.959	18.500 ***	7.235	32.116 ***
ADJ R-SQUARE	0.2051		0.2793		0.3261	
F-VALUE	25.248 ***		37.823 ***		41.389 ***	
N	2819		2850		2504	

*Significant at .10 level; ** Significant at .05 level; ***Significant at .01 level

65

The final version of the earnings model is presented in Table 20 and includes the variables ALLVET, length of service(LOS), and length of service squared (LOS2). None of the coefficients for the ALLVET variable were statistically significant in any of the models. The coefficient for length of service was significant in the hourly wage model only with an earnings penalty of 1.9 percent for each additional year of service. In the same model, length of service squared was positive and statistically significant, but very small (.001). Neither length of service or its square were found to be significant in the weekly or annual income models.

Table 20. OLS Regressions (Sample: Female/All Reserves)

VARIABLE	Log WAGE COEFFICIENT	Log WAGE T-STAT	Log INCWKLY COEFFICIENT	Log INCWKLY T-STAT	Log INCYRLY COEFFICIENT	Log INCYRLY T-STAT
DEMOGRAPHICS						
BLACK	0.072	3.088 ***	0.085	3.200 ***	-0.001	0.031
HISPANIC	0.138	3.725 ***	0.166	3.922 ***	0.005	0.111
AGE	0.059	5.418 ***	0.093	7.455 ***	0.121	9.251 ***
AGE2	-0.001	3.742 ***	-0.001	5.488 ***	-0.001	7.253 ***
PRESENT	0.010	0.394	-0.015	0.506	0.015	0.489
SEPARATE	0.025	0.455	0.019	0.296	-0.044	0.694
DIVWIDOW	-0.003	0.106	-0.008	0.242	0.029	0.858
CHILD	-0.003	0.338	-0.016	1.396	-0.046	3.908***
HS GRAD	0.043	0.666	0.013	0.182	0.090	1.207
SOMECOLL	0.089	1.443	0.052	0.743	0.093	1.310
COLLGRAD	0.189	2.848 ***	0.103	1.357	0.143	1.867 *
COLLPLUS	0.231	3.262 ***	0.206	2.544 **	0.291	3.556 ***
INDUSTRY						
AGRIMIN	-0.114	1.675 *	0.064	0.831	-0.049	0.617
TRANSP	0.099	1.802 *	0.180	2.877 ***	0.112	1.797 *
TRADE	-0.200	5.320 ***	-0.200	4.622 ***	-0.140	3.077 ***
FINANCE	-0.045	1.234	0.012	0.282	0.014	0.340
PROSERV	-0.004	0.145	-0.035	0.982	-0.044	1.208
PUBADM	0.094	3.522 ***	0.135	4.422 ***	0.194	6.331 ***
OCCUPATION						
MANAGER	0.128	3.989 ***	0.178	4.841 ***	0.164	4.369 ***
TECH	0.208	5.211 ***	0.232	5.058 ***	0.152	3.276 ***
SALES	-0.033	0.757	-0.075	1.475	-0.011	0.208
ADMIN	0.050	1.686 *	0.035	1.023	0.092	2.596 ***
CRAFT	0.190	3.398 ***	0.227	3.550 ***	0.260	4.204 ***
OPLABOR	0.032	0.679	0.051	0.960	-0.026	0.464
WORKPTC	-0.088	3.291 ***	-0.308	10.112 ***	-0.385	12.127 ***
MILITARY						
ALLVET	0.047	1.047	0.022	0.424	-0.030	0.577
LOS	-0.019	1.911 *	-0.007	0.582	-0.008	0.648
LOS2	0.001	2.913 ***	0.001	0.06	0.000	0.764
INTERCEPT	0.816	4.349 ***	3.869	17.940 ***	7.154	31.520 ***
ADJ R-SQUARE	0.2067		0.2765		0.3244	
F-VALUE	27.232 ***		39.893 ***		43.948 ***	
N	2819		2850		2504	

*Significant at .10 level; ** Significant at .05 level; ***Significant at .01 level

D. SUMMARY

This analysis found a significant negative effect of veteran status on the post-service earnings of female veterans who served during the AVF era. The same conclusion was reached by Mehay and Hirsch (1996) who used 1986 RCS data and found a wage penalty of 6.9 percent for female veterans of the same era. When this analysis examined the services separately, only Navy female veterans experienced an earnings penalty; no earnings differentials were noted for the other services in any of the models.

The overall effect of TRANSFER was large and positive. When the services were examined separately, Navy and Air Force veterans with transferable occupations received large and significant earnings premiums. There were no effects of TRANSFER noted for Army or Marine Corps veterans in any of the earnings models.

This analysis also found that black and Hispanic female reservists out-earned whites in hourly wages and weekly income. A similar conclusion was reached by Mehay and Hirsch (1996) who found that non-white female veterans from the AVF era out-earned their non-veteran counterparts as well as white veterans. Finally, length of service had a small negative effect on the hourly wages of all veterans, but did not impact weekly or annual incomes.

Both male and female veterans received negative returns to earnings because of military service, however, females suffered much larger penalties. Black female reservists received higher weekly and annual incomes than white females; the opposite was found for black and white male reservists. Both Hispanic males and females reservists outearned their white counterparts in all hourly wage and weekly income models. Having a

transferable occupation produced large and positive earnings premiums for all male and

female veterans.

VI. DATA ANALYSIS AND PRESENTATION: RESERVE COMPONENTS

A. INTRODUCTION

This chapter further examines the post-service earnings of veterans by estimating the effect of veteran status separately for each reserve component. The objective is to determine whether the difference in earnings between veterans and nonveterans differ by reserve component. One reason this might occur is due to the differences in the mix of skills across components. The Army Reserve and Army National Guard make up about one-half of the active Army's total force structure. The Army Reserve's primary mission includes transportation, training, logistic support, and staff support and to a much smaller extent combat support. The Army National Guard's primary mission is combat support; however, they do provide some non-combat support. The roles and missions of the Naval Reserve and active Navy are very similar. The Naval Reserve's roles range from fleet logistics and maritime patrol to surface combatants and medical support units. The Air National Guard's role is primarily combat support of the active Air Force. The Air Force Reserve contributes to nearly every mission area including combat, though the majority of its roles are non-combat oriented. The Marine Corps Reserve's missions closely resemble those of the Active Marine Corps including combat and non-combat support. The differences in these missions requires different skill mixes. Thus, the skills of both veterans and nonveterans may differ. Furthermore, differences may arise between veterans and nonveterans within a component if that component fills some positions with prior service veterans and other positions with nonveterans. Finally, there may be significant

differences among components in total demand requirements and the availability of positions at the local geographical level.

B. DESCRIPTIVE STATISTICS

Table 21 presents the descriptive statistics for the basic variables for each component. The sample sizes varied from 2,800 for the Army National Guard to 600 for the Naval Reserve. Air Force reservists had the highest hourly wage rate and weekly income at $14.18 and $623.98, respectively. Reservists in the Army National Guard had the lowest hourly wage rate and weekly income at $10.47 and $466.55, respectively. This is expected since Army Guardsmen are trained largely in combat MOS's, a non-transferable skill. Air Force National Guardsman earned the highest annual income at $25, 652.97, while Marine Corps reservists earned the lowest ($19, 463.49). The Army Reserve had the largest percentage of blacks (16 percent); only 5 percent of the Air National Guardsman were black. The Marine Corps Reserve had the largest percentage of Hispanics (12 percent) while the Army National Guard and Naval Reserve had the lowest (6 percent). The average number of children was highest for the Army Reserve (1.47) and lowest for the Marine Corps Reserve (.64). The Naval Reserve had the oldest members with an average age of 31.70 years; Marine Corps reservists were the youngest (25.97 years). The Naval Reserve and Air Force Reserve had the highest percentage of married members, 64 percent, compared to only 43 percent for the Marine Corps Reserve. The divorced or widowed percentage was highest in the Air Force Reserve (11 percent) and lowest in the Marine Corps Reserve (4 percent). The Marine Corps Reserve had the highest percentage of reservists with a high school education or higher (99 percent); the

72

Army National Guard had the lowest (88 percent). The Naval Reserve had the highest percentage of members with four-year college degrees (13 percent); the Army National Guard had the lowest (7 percent).

On average, more reservists worked in public administration than any other single industry. The Air National Guard had by far the largest percentage of members working in public administration (45 percent). The trade industry accounted for the second largest percentage of working reservists.

The Naval Reserve had the highest percentage members who were managers (17 percent); the Army National Guard had the lowest (11 percent). The Naval Reserve, Air Force Reserve, and Air National Guard all had the highest percentage of members who were technicians (9 percent); the Army Reserve, Army National Guard, and Marine Corps Reserve all had the lowest percentage of technicians (5 percent). The Marine Corps Reserve had the highest percentage of salesman (14 percent); the other reserve components averaged of about 7 percent. The percentage of administrative workers was roughly equal for all reserve components (7-11 percent). The Army National Guard had the largest percentage of laborers (28 percent); only 10 percent of the Air National Guard members had laborer-type jobs; the lowest of all reserve components. The majority of all reservists worked in craft-related occupations. The Air National Guard had the highest percentage of members who were craftsman (38 percent); the Marine Corps Reserve had the lowest (14 percent). Most reservists worked in full-time civilian jobs. The Marine Corps Reserve had the highest percentage of part-time workers (20 percent); the Air National Guard had the lowest (9 percent).

The Air Force Reserve had the highest percentage of members who were veterans (66 percent); the Marine Corps Reserve had the lowest (23 percent). The Naval Reserve had the highest percentage of reservists with transferable occupations to the private sector (20 percent); the Army Reserve had the lowest (9 percent). When veterans were examined separately, 31 percent of the Naval Reserve veterans had transferable occupations-followed by 24 percent of Air Force Reserve veterans, 22 percent of Marine Corps veterans, 16 percent of Air National Guard veterans, 12.6 percent of the Army Reserve, and 9 percent of the Army National Guard veterans. The transfer rates for the veterans were computed separately and are not included in Table 21.

Table 21. Descriptive Statistics of Earnings Models (By Reserve Component)

MODELS	ARMY RES	ARMY NG	NAVAL RES	AIR FORCE RES	AIR NG	MARINE CORPS RES
HOURLY WAGE RATE	10.65	10.47	13.24	14.18	13.31	10.91
WEEKLY INCOME	492.83	466.55	582.67	623.98	605.44	467.78
YEARLY INCOME	20235.33	20361.36	24535.58	25499.28	25652.97	19463.49
VARIABLES*						
BLACK	0.16	0.11	0.07	0.11	0.05	0.09
HISPANIC	0.07	0.06	0.06	0.11	0.07	0.12
CHILD	1.47	1.18	1.03	1.21	1.16	0.64
AGE	29.03	29.18	31.70	31.50	30.53	25.97
PRESENT	0.52	0.57	0.64	0.64	0.63	0.43
SEPARATE	0.02	0.03	0.01	0.02	0.02	0.02
DIVWIDOW	0.07	0.07	0.06	0.11	0.08	0.04
HSGRAD	0.31	0.38	0.27	0.20	0.27	0.26
SOMECOLL	0.48	0.40	0.50	0.61	0.56	0.59
COLLGRAD	0.09	0.07	0.13	0.12	0.11	0.11
COLLPLUS	0.05	0.03	0.05	0.05	0.03	0.03
AGRIMIN	0.10	0.11	0.06	0.05	0.04	0.11
TRANSP	0.06	0.07	0.09	0.10	0.07	0.08
TRADE	0.18	0.16	0.12	0.11	0.07	0.23
FINANCE	0.09	0.07	0.09	0.09	0.06	0.09
PROSERV	0.07	0.05	0.09	0.07	0.04	0.07
PUBADM	0.15	0.19	0.17	0.27	0.45	0.14
MANAGER	0.13	0.11	0.17	0.16	0.13	0.13
TECH	0.05	0.05	0.09	0.09	0.09	0.05
SALES	0.08	0.06	0.06	0.07	0.06	0.14
ADMIN	0.09	0.07	0.11	0.10	0.08	0.09
CRAFT	0.19	0.23	0.26	0.24	0.38	0.14
OPLABOR	0.24	0.28	0.16	0.13	0.10	0.21
WORKPTC	0.17	0.14	0.13	0.11	0.09	0.20
ALLVET	0.46	0.30	0.64	0.66	0.49	0.23
TRANSFER	0.09	0.05	0.20	0.18	0.10	0.10
N	1461	2791	616	582	1255	753

*The variable values were determined by calculating the average descriptive statistic values from the samples used in the three basic earnings models.

75

C. MULTIVARIATE ANALYSIS

Results from estimating the earnings models are presented in Tables 22-27. Each table contains the three basic earnings models; hourly wage, weekly income, and yearly income. Each table also contains the same specified earnings model that includes the military variables ALLVET and TRANSFER. The high adjusted R^2 value for each of the models indicated they provided a reasonable explanation of the variation in earnings. Of the three models, the annual income model provided the best fit with an average adjusted R^2 value of .3102.

Table 22 presents the results of the earnings models for the Army Reserve component. When black and Hispanic reservists were compared to whites, no earning differentials were noted in any of the earnings models. Age provided earnings premiums of 6.4 and 17.2 percent in weekly and annual incomes, respectively, but no differences were noted in the hourly wage rate model. When compared to singles, married Army reservists earned 11.8 and 21.9 percent higher weekly and annual incomes, respectively; separated reservists earned 26 percent higher weekly income; and divorced/widowed earned 16.5 percent higher annual income. Having children had no effect on Army reservists' earnings. When compared to Army reservists who did not graduate high school, high school graduates earned 11.8 percent higher yearly incomes; those with "some college" earned 12.2 percent higher hourly wages; four-year college graduates earned 16.2 percent higher hourly wages; and those with "college plus" earned premiums of 28.4, 21.9, and 17.8 percent in hourly wages, weekly incomes, and yearly incomes, respectively.

All industry variables were compared to manufacturing. Working in agriculture, mining, or transportation had no effect on Army reservists' earnings. Army reservists working in the trade, finance, and professional services industries all experienced large earnings penalties. Reservists working in public administration received earnings premiums of 17.9, 16.9, and 24.9 percent in hourly wages, weekly income, and yearly income, respectively.

All occupation variables were compared to the base occupation services. Army reservists working in occupations other than services received earnings premiums. Craft workers experienced the largest premiums of 20.2 and 20.9 percent in weekly and annual incomes, respectively. Reservists working as technicians earned the highest earnings premium of 23.8 percent in annual income. Working as a laborer had no effect on reservists' earnings. Working part-time had a significant negative effect on earnings in all three models.

Being a veteran in the Army Reserve component caused a 7.4 percent penalty in annual income, but no significant effects were noted in the hourly wage rate or weekly income models. Army reservists with transferable occupations received earnings premiums of 10.1, 13, and 4.4 percent in hourly wages, weekly income, and yearly income, respectively.

Table 22. OLS Regressions (Sample: Male/Army Reserve)

	Log WAGE		Log INCWKLY		Log INCYRLY	
VARIABLE	COEFFICIENT	T-STAT	COEFFICIENT	T-STAT	COEFFICIENT	T-STAT
DEMOGRAPHICS						
BLACK	-0.032	0.367	-0.049	1.154	-0.029	0.673
HISPANIC	0.049	0.314	0.085	1.456	0.049	0.769
AGE	0.058	0.006	0.064	2.627 ***	0.172	6.191 ***
AGE2	-0.001	1.625 *	-0.001	0.201	-0.002	5.068 ***
PRESENT	0.027	0.801	0.118	2.895 ***	0.219	5.345 ***
SEPARATE	0.127	1.429	0.261	2.457 **	0.156	1.371
DIVWIDOW	-0.042	0.784	0.042	0.648	0.165	2.471 **
CHILD	0.021	0.110	-0.004	0.229	-0.010	0.622
HS GRAD	0.043	0.829	0.044	0.712	0.118	1.848 *
SOMECOLL	0.122	2.428 ***	0.057	0.947	0.052	0.847
COLLGRAD	0.162	2.533 ***	0.080	1.045	0.076	0.970
COLLPLUS	0.284	3.699 ***	0.219	2.372 **	0.178	1.873 *
INDUSTRY						
AGRIMIN	-0.059	1.257	-0.040	0.709	-0.013	0.231
TRANSP	-0.035	0.640	-0.057	0.867	-0.011	0.173
TRADE	-0.231	5.693 ***	-0.277	5.668 ***	-0.211	4.212 ***
FINANCE	-0.219	4.587 ***	-0.228	3.986 ***	-0.060	1.010
PROSERV	-0.118	2.168 **	-0.207	3.162 ***	-0.198	2.991 ***
PUBADM	0.179	4.390 ***	0.169	3.441 ***	0.249	5.029 ***
OCCUPATION						
MANAGER	0.112	2.417 **	0.170	3.043 ***	0.202	3.554 ***
TECH	0.146	2.370 **	0.174	2.327 **	0.238	3.166 ***
SALES	0.088	1.554	0.169	2.470 **	0.179	2.528 **
ADMIN	0.126	2.461 **	0.127	2.062 **	0.072	1.155
CRAFT	0.202	4.967 ***	0.209	4.266 ***	0.157	3.110 ***
OPLABOR	-0.008	0.198	0.038	0.782	0.012	0.244
WORKPTC	-0.060	1.698 *	-0.231	5.482 ***	-0.244	5.586 ***
MILITARY						
ALLVET	-0.034	1.181	-0.062	0.069	-0.074	2.116 **
TRANSFER	0.101	2.255 **	0.130	2.413 **	0.044	0.830
INTERCEPT	0.842	2.637 ***	4.376	11.671 ***	6.504	15.338 ***
R-SQUARE / ADJ R-SQUARE	0.2444		0.2661		0.326	
F-VALUE	18.974 ***		21.398 ***		25.396 ***	
N	1500		1519		1362	

*Significant at .10 level; ** Significant at .05 level; ***Significant at .01 level

78

Table 23 presents the results of the earnings models for the Army National Guard. Black Guardsmen earned 7.2 percent less annual income than whites, but no differences were noted in the hourly wage or weekly income models. Hispanics out-earned whites and blacks in hourly wages and weekly income receiving premiums of 13.4 and 12.5, respectively; no differences existed in the yearly income model. Age created premiums of 6.6, 9.3, and 14.2 percent in hourly wages, weekly income, and annual income, respectively. Age squared was negative and significant in every case indicating that earnings would continue to rise with age, level off, then decline. When compared to single Guardsmen, married members earned premiums of 6.6 and 17.5 percent in weekly and yearly incomes, respectively, with no effect on hourly wages; separated members earned premiums of 15.3 and 14.9 percent in weekly and yearly incomes, but no difference in hourly wages; divorced or widowed members earned a premium of 7.8 percent in annual income only, but not differences were noted in hourly wages or weekly income. Guardsmen with children earned a small premium in weekly income with no differentials noted in hourly wages or yearly income. When compared to non-high school graduates, all members who had higher levels of education experienced large earnings premiums. Members with "college plus" earned the highest premiums.

All industry variables were compared to manufacturing. Guardsmen working in agriculture and mining earned premiums of 8.2 and 16 percent in hourly wages and weekly income, respectively, but no differences were noted in the annual income model. Members working in the transportation industry received large earnings premiums of 11.3, 11.5, and 15.3 in hourly wages, weekly income, and yearly income, respectively. Trade workers

received substantial earnings penalties in all three models. Finance workers received a 9.7 percent penalty in hourly wages, but no differences were noted in the weekly or yearly income models. No earnings differentials were observed for Guardsmen working in professional services. Members working in the public administration industry benefited the most, receiving earnings premiums of 23.9, 21.7, and 22.8 percent in hourly wages, weekly income, and annual income, respectively.

All occupation variables were compared to services. Guardsmen who worked as managers, technicians, salesmen, or in the crafts all earned sizable premiums in all three models; managers receiving the highest in all three. Administration workers earned premiums of 7.1 and 7.7 in hourly wages and yearly income, respectively, but no differences were notes in the weekly income model. Laborer-type occupations provided earnings premiums in weekly and yearly incomes, but had no effect on hourly wages. Guardsmen who only worked in part-time jobs suffered earnings penalties of 7.2, 31.1, and 30.2 percent in hourly wages, weekly income, and yearly income, respectively.

Veterans in the Army National Guard received earnings penalties of 4.3 and 4.7 percent in hourly wages and weekly income, respectively; no differences were noted in the yearly income model. Members of the National Guard with transferable occupations experienced no effects on their income in any of the three earnings models.

Table 23. OLS Regressions (Sample: Male/Army National Guard)

VARIABLE	Log WAGE COEFFICIENT	Log WAGE T-STAT	Log INCWKLY COEFFICIENT	Log INCWKLY T-STAT	Log INCYRLY COEFFICIENT	Log INCYRLY T-STAT
DEMOGRAPHICS						
BLACK	0.012	0.683	-0.043	1.296	-0.072	1.998 **
HISPANIC	0.134	3.677 ***	0.125	3.104 ***	0.008	0.187
AGE	0.066	4.508 ***	0.093	5.824 ***	0.142	8.406 ***
AGE2	-0.001	3.057 ***	-0.001	4.448 ***	-0.001	6.976 ***
PRESENT	0.033	1.371	0.066	2.455 **	0.175	6.250 ***
SEPARATE	0.062	1.079	0.153	2.395 **	0.149	2.157 **
DIVWIDOW	-0.034	0.86	-0.049	1.111	0.078	1.712 *
CHILD	0.005	0.619	0.017	1.819 *	0.008	0.855
HS GRAD	0.069	2.328 **	0.076	2.324 **	0.083	2.372 **
SOMECOLL	0.146	4.862 ***	0.106	3.188	0.140	3.953 ***
COLLGRAD	0.189	4.165 ***	0.147	2.912 ***	0.094	1.795 *
COLLPLUS	0.198	3.277 ***	0.126	1.877 *	0.173	2.506 **
INDUSTRY						
AGRIMIN	0.082	2.602 ***	0.160	4.578 ***	0.045	1.226
TRANSP	0.113	2.975 ***	0.115	2.707 ***	0.153	3.562 ***
TRADE	-0.165	5.616 ***	-0.199	6.078 ***	-0.204	5.992 ***
FINANCE	-0.097	2.516 **	-0.068	1.574	-0.028	0.630
PROSERV	-0.041	0.901	-0.052	1.024	-0.034	0.650
PUBADM	0.239	8.902 ***	0.217	7.277 ***	0.228	7.472 ***
OCCUPATION						
MANAGER	0.161	4.493 ***	0.204	5.141 ***	0.244	5.962 ***
TECH	0.120	2.559 **	0.148	2.852 ***	0.132	2.456 **
SALES	0.117	2.539 **	0.160	3.121 ***	0.267	5.000 ***
ADMIN	0.071	1.787 *	0.004	0.091	0.077	1.683 *
CRAFT	0.160	5.816 ***	0.146	4.779 ***	0.137	4.288 ***
OPLABOR	0.045	1.627	0.053	1.748 *	0.082	2.526 **
WORKPTC	-0.072	2.653 ***	-0.311	10.323 ***	-0.302	9.503 ***
MILITARY						
ALLVET	-0.043	2.081 **	-0.047	2.073 **	-0.008	0.343
TRANSFER	0.050	1.261	0.053	1.203	-0.005	0.102
INTERCEPT	0.677	3.096 ***	4.003	16.595 ***	6.984	27.462 ***
ADJ R-SQUARE	0.2006		0.2373		0.294	
F-VALUE	25.674 ***		34.330 ***		41.231 ***	
N	2870		2893		2609	

*Significant at .10 level; ** Significant at .05 level; ***Significant at .01 level

81

Table 24 presents the results of the earnings models for the Naval Reserve component. When compared to whites no earnings differential were noted for blacks or Hispanics in any of the three models. Age created large and significant earnings premiums of 7.2, 9.6, and 12.3 percent in hourly wages, weekly income, and yearly income, respectively and the age squared variable was negative and significant in every case. Married reservists earned substantially higher earnings premiums than single reservists. No earnings differentials were noted for separated reservists in any of the models. Divorced or widowed reservists out-earned single reservists by 24.2 and 25.5 percent in weekly and annual income, respectively. There were no earning differentials in any of the three models for the levels of education or for reservists with children. Some of these results may be due to the small sample size of about 600 observations.

All industry variables were compared to manufacturing. No earnings differentials were noted for reservists working in the agriculture and mining, transportation, financial, or public administration industries. Naval reservists working in trade received earnings penalties of 15 and 28 percent in weekly and annual income, respectively. Reservists working in the professional services industry suffered penalties of 16.7 and 21.2 percent in hourly wages and yearly earnings, respectively.

All occupation variables were compared to services. Managers received large earnings premiums of 23.5, 34.2, and 25.2 percent in hourly wages, weekly income, and yearly income, respectively. Technicians earned 14.7 percent higher hourly wages than service workers, but no differences were noted in the weekly and yearly income models. Working in sales or administrative jobs had no effect on any of the earnings models. Reservists

working in craft-related occupations experienced and earnings premium of 17.1 percent in annual income, but no differentials were noted in the hourly wage or weekly income models. Naval reservists working as laborers received a 13.8 percent penalty in hourly wages with no impact on weekly or yearly income. Part-time workers experienced an earnings penalty of 17.9 percent in yearly income, but not differentials were noted in the hourly wage and weekly income models.

Veterans in the Naval Reserve experienced earnings penalties of 11.6 and 12.1 percent in weekly and yearly incomes, respectively; no significant differential was noted in the hourly wage model. All Naval reservists with transferable occupations received large earnings premiums of 18.4, 24.1, and 14 percent in hourly wages, weekly income, and annual income, respectively.

Table 24. OLS Regressions (Sample: Male/Naval Reserve)

VARIABLE	Log WAGE		Log INCWKLY		Log INCYRLY	
	COEFFICIENT	T-STAT	COEFFICIENT	T-STAT	COEFFICIENT	T-STAT
DEMOGRAPHICS						
BLACK	-0.106	1.296	-0.115	1.258	-0.081	0.811
HISPANIC	0.019	0.224	-0.046	0.482	0.167	1.588
AGE	0.072	2.885 ***	0.096	3.450 ***	0.123	4.024 ***
AGE2	-0.008	2.267 **	-0.001	2.715 ***	-0.002	3.408 ***
PRESENT	0.136	2.435 **	0.220	3.559 ***	0.212	3.159 ***
SEPARATE	0.011	0.063	-0.029	0.145	0.098	0.441
DIVWIDOW	0.130	1.366	0.242	2.289 **	0.255	2.003 **
CHILD	0.025	1.242	0.019	0.832	0.017	0.684
HS GRAD	0.055	0.526	0.049	0.419	0.023	0.181
SOMECOLL	0.089	0.869	0.037	0.322	-0.023	0.184
COLLGRAD	0.162	1.393	0.090	0.698	0.098	0.710
COLLPLUS	0.143	1.055	0.079	0.524	0.075	0.463
INDUSTRY						
AGRIMIN	-0.053	0.592	-0.047	0.470	-0.137	1.215
TRANSP	0.062	0.831	0.092	1.117	0.019	0.205
TRADE	-0.118	1.558	-0.150	1.799 *	-0.280	3.170 ***
FINANCE	0.038	0.494	0.002	0.029	-0.078	0.816
PROSERV	-0.167	2.112 **	-0.103	1.183	-0.212	2.329 **
PUBADM	0.064	1.041	0.045	0.662	0.081	1.102
OCCUPATION						
MANAGER	0.235	3.114 ***	0.342	4.100 ***	0.252	2.785 ***
TECH	0.147	1.658 *	0.146	1.480	0.172	1.629
SALES	-0.097	0.933	-0.029	0.253	-0.019	0.156
ADMIN	-0.030	0.372	-0.102	1.132	0.014	0.141
CRAFT	0.090	1.345	0.096	1.288	0.171	2.111 **
OPLABOR	-0.138	1.844 *	-0.093	1.122	0.049	0.527
WORKPTC	0.053	0.839	-0.046	0.659	-0.179	2.335 **
MILITARY						
ALLVET	-0.073	1.616	-0.116	2.304 **	-0.121	2.176 **
TRANSFER	0.184	3.478 ***	0.241	4.113 ***	0.140	2.254 **
INTERCEPT	0.718	1.677 *	3.980	8.396 ***	7.380	14.127 ***
ADJ R-SQUARE	0.2187		0.2766		0.2724	
F-VALUE	7.470 ***		9.906 ***		9.237 ***	
N	624		629		594	

*Significant at .10 level; ** Significant at .05 level; ***Significant at .01 level

84

Table 25 presents the results of the earnings models for the Air Force Reserve component. When compared to white reservists, the were no differentials for black or Hispanics in any of the earnings models. Age had a large positive effect on earnings creating premiums of 10.7, 12.5, and 19.1 percent in hourly wages, weekly income, and yearly income, respectively. Age squared was negative and statistically significant in every case. When compared to single Air Force reservists, married and separated members earned substantial premiums in all three models. Divorced or widowed reservists out-earned single members by 30.4 percent in annual income; no differentials were noted in the hourly wage or weekly income models. Air Force reservists with children received earning premiums of 4.4 and 4.3 percent in weekly and yearly incomes, respectively. Air Force reservists with "some college" earned a 29.1 percent premium in yearly income; in all other cases higher education was not statistically significant in explaining the earnings differentials of Air Force reservists.

Compared to manufacturing, working in agriculture or mining had no impact on reservists' earnings. Air Force reservists working in transportation experienced earnings premiums of 15.1 and 20 percent in weekly and yearly incomes, respectively; no differential was noted in the hourly wage model. Reservists working in trade suffered penalties of 19.5 and 28.3 percent in hourly wages and weekly income, respectively. Working in the financial industry created earnings penalties of 18.9 and 15.7 percent in weekly and annual incomes, respectively. No earnings differentials were noted for professional service workers. Public administrative workers received large premiums in all three earnings models.

Compared to services Air Force reservists working as managers earned premiums of 13.8, 18.6, and 14.3 percent in hourly wages, weekly income, and yearly income, respectively. Working as technicians, salesmen, administrative employees, or laborers did not impact the earnings of Air Force reservists. Craft-type occupations created premiums of 24.5, 24.3, and 12.6 percent in hourly wages, weekly income, and yearly income, respectively. Reservists working in part-time jobs received severe earnings penalties in all three models.

Air Force Reserve veterans generally had a lower earnings than nonveterans. Air Force veterans received 10.5 percent lower weekly income than non-veterans, but no differences were noted in the hourly wage or yearly income models. Reservists with transferable occupations earned 9.8 and 14 percent higher weekly and annual incomes, respectively; no difference was noted for hourly wages.

Table 25. OLS Regressions (Sample: Male/Air Force Reserve)

VARIABLE	Log WAGE COEFFICIENT	T-STAT	VARIABLE	Log INCWKLY COEFFICIENT	T-STAT	VARIABLE	Log INCYRLY COEFFICIENT	T-STAT
DEMOGRAPHICS			**DEMOGRAPHICS**			**DEMOGRAPHICS**		
BLACK	0.052	0.783	BLACK	-0.034	0.476	BLACK	-0.003	0.044
HISPANIC	-0.019	0.278	HISPANIC	-0.054	0.734	HISPANIC	-0.075	1.014
AGE	0.107	3.129 ***	AGE	0.125	3.409 ***	AGE	0.191	4.559 ***
AGE2	-0.001	2.520 **	AGE2	-0.001	2.895 ***	AGE2	-0.003	3.976 ***
PRESENT	0.247	4.145 ***	PRESENT	0.231	3.598 ***	PRESENT	0.242	3.643 ***
SEPARATE	0.33	2.081 **	SEPARATE	0.465	2.714 ***	SEPARATE	0.542	3.286 ***
DIVWIDOW	0.105	1.324	DIVWIDOW	0.116	1.353	DIVWIDOW	0.304	3.450 ***
CHILD	-0.006	0.276	CHILD	0.044	1.996 **	CHILD	0.043	1.889 *
HS GRAD	0.081	0.532	HS GRAD	0.049	0.298	HS GRAD	0.238	1.444
SOMECOLL	0.210	1.424	SOMECOLL	0.175	1.098	SOMECOLL	0.291	1.836 *
COLLGRAD	0.120	0.771	COLLGRAD	0.046	0.273	COLLGRAD	0.276	1.634
COLLPLUS	0.132	0.768	COLLPLUS	0.088	0.476	COLLPLUS	0.200	1.090
INDUSTRY			**INDUSTRY**			**INDUSTRY**		
AGRIMIN	0.114	1.127	AGRIMIN	0.140	1.287	AGRIMIN	-0.100	0.942
TRANSP	0.109	1.406	TRANSP	0.151	1.819 *	TRANSP	0.200	2.413 **
TRADE	-0.195	2.352 **	TRADE	-0.283	3.173 ***	TRADE	-0.066	0.708
FINANCE	-0.095	1.196	FINANCE	-0.189	2.202 **	FINANCE	-0.157	1.790 *
PROSERV	-0.087	0.961	PROSERV	-0.152	1.546	PROSERV	0.055	0.554
PUBADM	0.129	2.266 **	PUBADM	0.171	2.794 ***	PUBADM	0.241	3.863 ***
OCCUPATION			**OCCUPATION**			**OCCUPATION**		
MANAGER	0.138	1.935 *	MANAGER	0.186	2.422 **	MANAGER	0.143	1.836 *
TECH	0.066	0.801	TECH	0.039	0.439	TECH	-0.089	0.984
SALES	-0.003	0.030	SALES	0.153	1.381	SALES	0.095	0.844
ADMIN	-0.010	0.118	ADMIN	0.072	0.816	ADMIN	0.036	0.396
CRAFT	0.245	3.848 ***	CRAFT	0.243	3.552 ***	CRAFT	0.126	1.791 *
OPLABOR	-0.005	0.067	OPLABOR	-0.005	0.058	OPLABOR	-0.056	0.626
WORKPTC	-0.133	1.961 *	WORKPTC	0.311	4.251 ***	WORKPTC	-0.274	3.701 ***
MILITARY			**MILITARY**			**MILITARY**		
ALLVET	-0.046	0.991	ALLVET	-0.105	2.119 **	ALLVET	-0.080	1.607
TRANSFER	0.064	1.153	TRANSFER	0.098	1.645 *	TRANSFER	0.140	2.320 **
INTERCEPT	0.017	0.030	INTERCEPT	3.500	5.604***	INTERCEPT	5.954	8.522 ***
ADJ R-SQUARE	0.2311		ADJ R-SQUARE	0.2908		ADJ R-SQUARE	0.2932	
F-VALUE	7.533 ***		F-VALUE	9.976 ***		F-VALUE	9.744 ***	
N	587		N	591		N	569	

*Significant at .10 level; ** Significant at .05 level; ***Significant at .01 level

Table 26 presents earnings models for the Air National Guard component. When compared to white Air National Guardsmen, there were no earnings differentials noted for blacks or Hispanics in any of the three basic models. Age had a large, positive effect on earnings with premiums of 8.5, 12.2, and 16.1 percent in hourly wages, weekly income, annual income, respectively, and age squared was negative in every case indicating a diminishing effect of age on reservists' earnings. Air National Guardsmen who were married out-earned single members by 8.8 and 15.3 percent in weekly and annual incomes, respectively. There were no earning differentials noted for members of the Air National Guard who were separated, or divorced or widowed. When compared to Air National Guardsmen who were non-high school graduates, there were only two cases where higher education impacted earnings; members who were high school graduates or had "some college" earned annual income premiums of 15.9 and 16.3 percent, respectively.

Compared to manufacturing, Air National Guardsmen working in the agricultural and mining, and finance industries experienced no earning differentials in any of the models. Members working in transportation received premiums of 10 and 13.4 percent in hourly wages and weekly income, respectively, but no differences were noted in yearly income. Trade workers received penalties of 10, 10.6, and 13.5 percent in hourly wages, weekly income, and yearly income, respectively. Air National Guardsmen working in professional services experienced a large penalty of 18.8 percent in yearly income, but no differences were noted in the hourly wage rate or weekly income models. Public administration workers received substantial earnings premiums of 19.9, 18.6, and 20.3 percent in hourly wages, weekly income, and yearly income, respectively.

Compared to services, Air National Guardsmen working as managers and in craft-type jobs earned sizable premiums in all three models. Technicians earned a 15.7 percent premium in hourly wages, but no differentials were noted in the weekly or yearly income models. Air National Guardsmen employed as salesmen earned a premium of 15.4 percent in yearly income with no effect on hourly wages or weekly income. No earnings differentials were noted for Air National Guardsmen working in administrative or laborer-type jobs. Members who only worked part-time experienced large penalties in hourly wages, weekly income, and annual income.

Veteran status did not affect the earnings of Air National Guardsmen in any of the models. Members with transferable occupations received earnings premiums of 11.9 in both weekly and yearly incomes; but no significant differences were noted in the hourly wage rate model.

Table 26. OLS Regressions (Sample: Male/Air National Guard)

VARIABLE	Log WAGE COEFFICIENT	Log WAGE T-STAT	Log INCWKLY COEFFICIENT	Log INCWKLY T-STAT	Log INCYRLY COEFFICIENT	Log INCYRLY T-STAT
DEMOGRAPHICS						
BLACK	0.041	0.723	0.004	0.051	0.026	0.415
HISPANIC	-0.005	0.099	-0.093	1.608	-0.029	0.521
AGE	0.085	3.422 ***	0.122	4.064 ***	0.161	5.532 ***
AGE2	-0.001	2.581 ***	-0.001	3.206 ***	-0.002	4.533 ***
PRESENT	0.052	1.519	0.088	2.125 **	0.153	3.907 ***
SEPARATE	-0.100	0.946	0.033	0.264	0.099	0.847
DIVWIDOW	0.010	0.186	0.033	0.602	0.086	1.446
CHILD	0.009	0.734	0.014	0.332	-0.001	0.091
HS GRAD	-0.001	0.013	-0.012	0.122	0.159	1.712 *
SOMECOLL	0.068	0.861	0.045	0.463	0.163	1.786 *
COLLGRAD	0.060	0.697	0.043	0.410	0.080	0.805
COLLPLUS	-0.019	0.178	-0.032	0.243	0.102	0.833
INDUSTRY						
AGRIMIN	-0.049	0.429	0.006	0.073	-0.085	1.079
TRANSP	0.100	1.866 *	0.134	2.153 **	0.056	0.915
TRADE	-0.100	1.951 *	-0.106	1.699 *	-0.135	2.275 **
FINANCE	0.055	0.943	0.088	1.257	-0.006	0.089
PROSERV	-0.130	1.992	-0.110	1.417	-0.188	2.567 *
PUBADM	0.199	6.195 ***	0.186	4.788 ***	0.203	5.510 ***
OCCUPATION						
MANAGER	0.143	2.981 ***	0.150	2.597 ***	0.192	3.527 ***
TECH	0.157	3.041 ***	0.047	0.756	0.042	0.721
SALES	0.032	0.495	0.033	0.415	0.154	2.058 *
ADMIN	0.081	1.501	-0.032	0.487	0.023	0.363
CRAFT	0.203	5.376 ***	0.154	3.375 ***	0.144	3.345 ***
OPLABOR	0.064	1.244	0.045	0.722	0.025	0.425
WORKPTC	-0.152	3.439 ***	-0.318	5.970 ***	-0.302	6.001 ***
MILITARY						
ALLVET	-0.036	1.384	-0.048	1.508	-0.006	0.199
TRANSFER	0.062	1.406	0.119	2.235 **	0.119	2.422 **
INTERCEPT	0.564	1.461	3.710	7.949 ***	6.702	14.715 ***
ADJ R-SQUARE	0.2261		0.2205		0.2944	
F-VALUE	14.665 ***		14.407 ***		19.867 ***	
N	1263		1280		1221	

*Significant at .10 level; ** Significant at .05 level; ***Significant at .01 level

Table 27 presents the earnings models for the Marine Corps Reserve component. When compared to white reservists, there were no earnings differentials noted in any of the models for blacks. Hispanic earnings exceeded whites' by 11.1 percent in weekly income, but no differences were noted for the hourly wage rate or yearly income models. Age had a large, positive effect on earnings creating premiums of 7.2, 14.6, and 19.2 percent in hourly wages, weekly income, and yearly income, respectively. In most cases, age squared was negative and statistically significant indicating a diminish effect of age on earnings. When compared to single Marine Corps reservists, married members earned premiums of 9.8, 13.3, and 17.6 percent in hourly wages, weekly income, and yearly income, respectively; separated reservists earned 29.4 percent higher annual incomes; no earning differentials were noted for divorced or widowed reservists. Education was not a factor in any of the earnings models. Again, this surprising result may be due to the small sample of only 700 or so Marine Corps reservists.

Compared to manufacturing working in the agriculture and mining, trade, and financial industries had no effect on reservists' earnings. The transportation industry provided reservists with premiums of 17.9, 14.2, and 18.4 percent in hourly wages, weekly income, and yearly income, respectively. Reservists working in the professional services received earnings penalties of 14.3, 16.3, and 23.4 percent in hourly wages, weekly income, and annual income, respectively. Working in the public administration industry provided large earnings premiums for reservists in all three models.

All occupation variables were compared to the base occupation services. Marine Corps reservists with careers in management earned 20 and 18.6 percent higher weekly and

annual incomes, respectively, but no differences were noted in the hourly wage rate. No earnings differentials were noted for Marine Corps reservists who had jobs has technicians, administrative workers, or laborers. Reservists working as salesmen earned a premium of 17.6 percent in yearly income, with no differences noted in hourly wage rates or weekly income. Working in craft-type occupations created premiums of 14.5 and 20.1 percent in hourly wages and weekly income, respectively; no differences were noted in yearly income. Reservists only working part-time in their civilian jobs experienced substantial earnings penalties of 24.6, 41.4, and 44 percent in hourly wages, weekly income, and yearly income, respectively.

There were no significant earnings differentials found in any of the models between Marine Corps veterans and nonveterans. Reservists with transferable occupations earned a premium of 13.8 percent in yearly income; but no differences were noted in the hourly wage rate and weekly income models.

Table 27. OLS Regressions (Sample: Male/Marine Corps Reserve)

VARIABLE	Log WAGE COEFFICIENT	Log WAGE T-STAT	Log INCWKLY COEFFICIENT	Log INCWKLY T-STAT	Log INCYRLY COEFFICIENT	Log INCYRLY T-STAT
DEMOGRAPHICS						
BLACK	-0.062	1.027	-0.106	1.573	-0.053	0.680
HISPANIC	0.077	1.445	0.111	1.848 *	0.046	0.646
AGE	0.072	1.975 **	0.146	3.591 ***	0.192	3.815 ***
AGE2	-0.001	1.475	-0.002	2.981 ***	-0.003	2.959 ***
PRESENT	0.098	2.205 **	0.133	2.653 ***	0.176	3.098 ***
SEPARATE	0.037	0.273	0.141	0.940	0.294	1.723 *
DIVWIDOW	-0.036	0.399	0.009	0.087	0.110	0.971
CHILD	0.037	1.758 *	0.111	1.848 *	0.052	2.020 **
HS GRAD	0.049	0.331	-0.024	0.145	0.115	0.656
SOMECOLL	0.124	0.841	0.033	0.198	0.045	0.262
COLLGRAD	0.178	1.146	-0.016	0.091	-0.023	0.127
COLLPLUS	0.262	1.500	0.140	0.717	0.161	0.778
INDUSTRY						
AGRIMIN	0.005	0.078	0.095	1.357	-0.016	0.186
TRANSP	0.179	2.609 ***	0.142	1.853 *	0.184	2.068 **
TRADE	-0.045	0.837	-0.066	1.114	-0.031	0.436
FINANCE	-0.039	0.586	0.011	0.147	-0.055	0.636
PROSERV	-0.143	1.840 *	-0.163	1.875 *	-0.234	2.289 **
PUBADM	0.239	3.737 ***	0.332	4.634 ***	0.376	4.502 ***
OCCUPATION						
MANAGER	0.094	1.463	0.200	2.773 ***	0.186	2.238 **
TECH	0.092	1.055	0.127	1.295	0.154	1.375
SALES	-0.058	0.874	0.065	0.873	0.176	1.942 *
ADMIN	0.098	1.386	0.046	0.576	0.097	1.014
CRAFT	0.145	2.321 **	0.201	2.871 ***	0.095	1.163
OPLABOR	-0.015	0.264	0.060	0.939	-0.034	0.447
WORKPTC	-0.246	5.548 ***	-0.414	8.330 ***	-0.440	7.313 ***
MILITARY						
ALLVET	0.067	1.334	0.056	0.984	-0.022	0.341
TRANSFER	0.081	1.311	0.097	1.397	0.138	1.792 *
INTERCEPT	0.797	1.484	3.425	5.688 ***	6.227	8.558 ***
ADJ R-SQUARE	0.2516		0.3298		0.381	
F-VALUE	10.785 ***		15.334 ***		16.619 ***	
N	786		787		685	

*Significant at .10 level; ** Significant at .05 level; ***Significant at .01 level

D. SUMMARY

Veteran status had a negative effect on the earnings for Army National Guardsmen and Army reservists. Veterans with transferable occupations serving in the Army Reserve experienced earnings premiums, but no earnings differences were noted for Army National Guard veterans with transferable skills. Naval Reserve veterans also experienced earnings penalties; but those with transferable occupations received large earnings premiums. Air Force Reserve veterans experienced earnings penalties with no earnings differences noted for Air National Guard veterans. Both Air Force Reserve and Air National Guard veterans with transferable occupations received earnings premiums. No earnings differentials were noted for Marine Corps Reserve veterans; however, Marine Corps veterans with transferable occupations did received a premium in annual earnings.

The findings in this chapter vary slightly from those of Chapter IV where veterans' earnings were examined by individual service branches. In Chapter IV, Air Force and Marine Corps veterans benefited from military service; whereas in this chapter, Air Force Reserve veterans' earnings were hurt by military service with no effect on Marine Corps Reserve veterans' earnings. Military service had a neutral affect on Navy veterans' earnings in Chapter IV, but had a negative effect when Navy veterans were examined by their reserve component. In all cases, Army veterans suffered earnings penalties because of military service. In Chapter IV, as in this chapter, skill transferability had a large and positive affect on all veterans' earnings with the exception of the Army. Army National Guardsmen were the only group to not benefit from military training, probably the result of possessing skills that were too combat-oriented for the private labor market.

VII. CONCLUSIONS

This thesis examined the effect of military service on the post-service earnings of both male and female veterans. Additionally, this research considered the size of the veteran-nonveteran earnings differentials based on the reserve component in which they served.

For male reservists, veteran status had an overall negative effect on post-service earnings. Miller (1991) reached the same conclusion using the 1986 RCS data. This average effect appeared to be accounted for largely by Army veterans who experienced the largest earnings penalty. Similar conclusions on Army veterans were found by Hirsch and Mehay (1997) using 1986 RCS data and by Bryant and Wilhite (1990) using NLSY data. Navy and Air Force veterans experienced no earnings differentials, and Marine Corps veterans received an earnings premium. Overall, skill transferability had a large, positive effect on male veterans' post-service earnings. Specifically, Navy, Air Force, and Marine Corps veterans benefited from having transferable occupations; transferability had no effect on the earnings of Army veterans. Similar conclusions were reached by Bryant and Wilhite (1990) who found that service in the Army depresses veterans' wages and that military training had little offsetting effect. Additionally, they found that service in the Navy and Marine Corps also depresses wages and only Navy training provided an offsetting effect. Bryant and Wilhite also found that service in the Air Force had little impact on wages, but training received in the Air Force had a large positive effect. Length of service was not a factor in any of the earnings models for male veterans.

For female reservists, veteran status also had a negative impact on their post-service earnings. A similar conclusion was reached by Mehay and Hirsch (1996). When the services were examined separately, female Navy veterans were the only group to experience an earnings penalty due to veteran status; no earnings differentials were observed for female veterans in the other services. The overall effect of female veterans having transferable occupations was large and positive. Navy and Air Force veterans working in civilian jobs similar to their military occupation received large earnings premiums, while female Army and Marine Corps veterans with transferable occupations experienced no earnings differentials. Length of service was not a factor in any of the earnings models for female veterans.

Male reservists who were black typically received lower income than whites in all earnings models. Male reservists who were Hispanic generally earned higher hourly wages and weekly income than either whites or blacks. Male and female reservists who were single earned less than those who were married, separated, and divorced or widowed. Age had a positive effect on all reservists' earnings. In nearly every earnings model, there was a positive relationship between education and income. Black and Hispanic female reservists earned higher hourly wages and weekly incomes than whites. Similar conclusions regarding non-white and white female veterans were reached in Mehay and Hirsch (1996).

When considering the effect of veteran status by reserve component, veterans in the Army Reserve, Army National Guard, Naval Reserve, and Air Force Reserve all experienced earnings penalties. Veteran status had no effect on the earnings of veterans

serving in the Air National Guard or Marine Corps Reserve. Veterans from each reserve component, with the exception of the Army National Guard, received earnings premiums for having transferable occupations.

Evidence from this thesis strongly supports the theory that skill transferability improves veterans' marketability in the private labor market. Military service without learning a general skill appears to detract from service members' human capital. According to Bryant and Wilhite (1990), "military service depresses veterans' wages and the longer one serves on active duty the greater the differential becomes. On the other hand, military training increases wages and if enough training is obtained an individual could come out ahead." Evidence supporting the positive effects of transferability on veterans' earnings is found in Miller (1991); Hirsch and Mehay (1997); Fredland and Little (1980); Mangum and Ball (1989); Bryant, Samaranayake, and Wilhite (1993).

Though the military's function is not to train its members for work in the private sector, more effort should be made to ensure every training opportunity is provided to those who desire and qualify for it. This action could achieve several objectives. First, it may attract new entrants who are seeking education but cannot afford civilian tuition costs. Second, retention may improve if service members are offered training that is desirable or provides a lifelong skill. Finally, providing training to service members could help prepare them for productive worklifes after military service. Special attention should be given to Army veterans to help better prepare them for post-military employment. To supplement their normal training, soldiers could be granted early access to Montgomery GI Bill funds in order to pursue a civilian education during off duty time. This would allow the Army to

maintain its quota levels of combat MOS's while still providing soldiers with opportunities to acquire civilian occupational skills.

Finally, race is still a major factor in determining the earnings of veterans. Though large earnings differentials existed between the races, this thesis did not attempt to examine the specific reasons for the differences. As the population of minorities continues to grow in the military, further research on this topic is warranted and strongly recommended.

BIBLIOGRAPHY

Angrist, Joshua D., "Lifetime Earnings and the Vietnam Era Draft Lottery: Evidence from Social Security Administrative Records," <u>American Economic Review</u>, pp. 313-336, June 1990

Berger, Mark C. and Hirsch, Barry T., "The Civilian Earnings Experience of Vietnam-Era Veterans," <u>Journal of Human Resources</u>, v. 18, pp. 455-479, April 1983

Browning, Harley L., Lopreato, Sally C. and Poston, Dudley L., Jr., "Income and Veteran Status: Variations Among Mexican Americans, Blacks, and Anglos," <u>American Sociological Review</u>, v. 38, pp. 74-85, February 1973

Bryant, Richard. R., Samaranayake, V.A. and Wilhite, Allen, "The Effect of Military Service on the Subsequent Civilian Wage of the Post-Vietnam Veteran," <u>The Quarterly Review of Economics and Finance</u>, v. 33, no.1, pp. 15-31, Spring 1993

Bryant, Richard and Wilhite, Al, "Military Experience and Training Effects on Civilian Wages," <u>Applied Economics</u>, v. 22, pp. 69-81, 1990

Cooke, Timothy W. and Quester, Aline O., "What Characterizes Successful Enlistees in the All-Volunteer Force: A Study of Male Recruits in the U.S. Navy," <u>Social Science Quarterly</u>, v. 73, no. 2, pp. 238-251, June 1992

Cymrot, Donald, "The Effects of Selective Reenlistment Bonuses on Retention," CNA, March 1987

De Tray, Dennis, "Veteran Status as a Screening Device," <u>American Economic Review</u>, v. 72, pp. 133-142, March 1982

Ehrenberg, Ronald G. and Smith, Robert S., <u>Modern Labor Economics: Theory and Public Policy, Fifth Edition</u>, New York, HarperCollins College Publishers, 1994

Fredland, John E. and Little, Roger D., "Long-term Returns to Vocational Training: Evidence from Military Sources," <u>The Journal of Human Resources</u>, XV, 1980

Hirsch, Barry T. and Mehay, Stephan L., "Evaluating the Labor Market Performance of Veterans Using a Matched Comparison Group Design," prepared for the 1997 Western Economic Association Meetings, Seattle WA., July 1997

Mehay, Stephen and Hirsch, Barry T., "The Postmilitary Earnings of Female Veterans," <u>Industrial Relations</u>, v. 35, no. 2, pp. 197-217, April 1996

Mehay, Stephen and Hogan, Paul F., "The Effect of Separation Bonuses on Voluntary Quits: Evidence from a Structural Model and a Black Box," Hoover Institution, Stanford University, U.S. Naval Postgraduate School, George Mason University, and The Lewin Group, no date

Mangum, Stephen and Ball, David, " Military Skill Training: Some Evidence of Transferability," Armed Forces and Society, v.13, pp. 425-441, Spring 1987

Mangum, Stephen and Ball, David, "The Transferability of Military-Provided Occupational   Training in the Post-Draft Era," Industrial and Labor Relations Review, v. 42, No.2, pp. 230-45, January 1989

Miller, Carolyn J., "Post-Service Earnings of Veterans: A Survey and Further Research," Master's Thesis, Naval Postgraduate School, Monterey, CA, March 1991

Schwartz, Saul, "The Relative Earnings of Vietnam and Korean-Era Veterans," Industrial and Labor Relations Review, v. 39, no. 4, pp. 564-572, July 1986

INITIAL DISTRIBUTION LIST

1. Defense Technical Information Center 2
   8725 John J. Kingman Rd., Ste 0944
   Ft. Belvoir, VA 22060-6218

2. Dudley Knox Library...2
   Naval Postgraduate School
   411 Dyer Rd.
   Monterey, California 93943-5101

3. Dr. Stephen L. Mehay, Code SM/Mp 2
   Department of Systems Management
   Naval Postgraduate School
   Monterey, California

4. Dr. Michael D. Cook, Code SM/Cm..1
   Department of Systems Management
   Naval Postgraduate School
   Monterey, California

5. LT Steven J. Petroff, USN..3
   Department Head Class 152
   SWOSCOLCOM
   446 Cushing Road
   Newport, RI 02841-1209