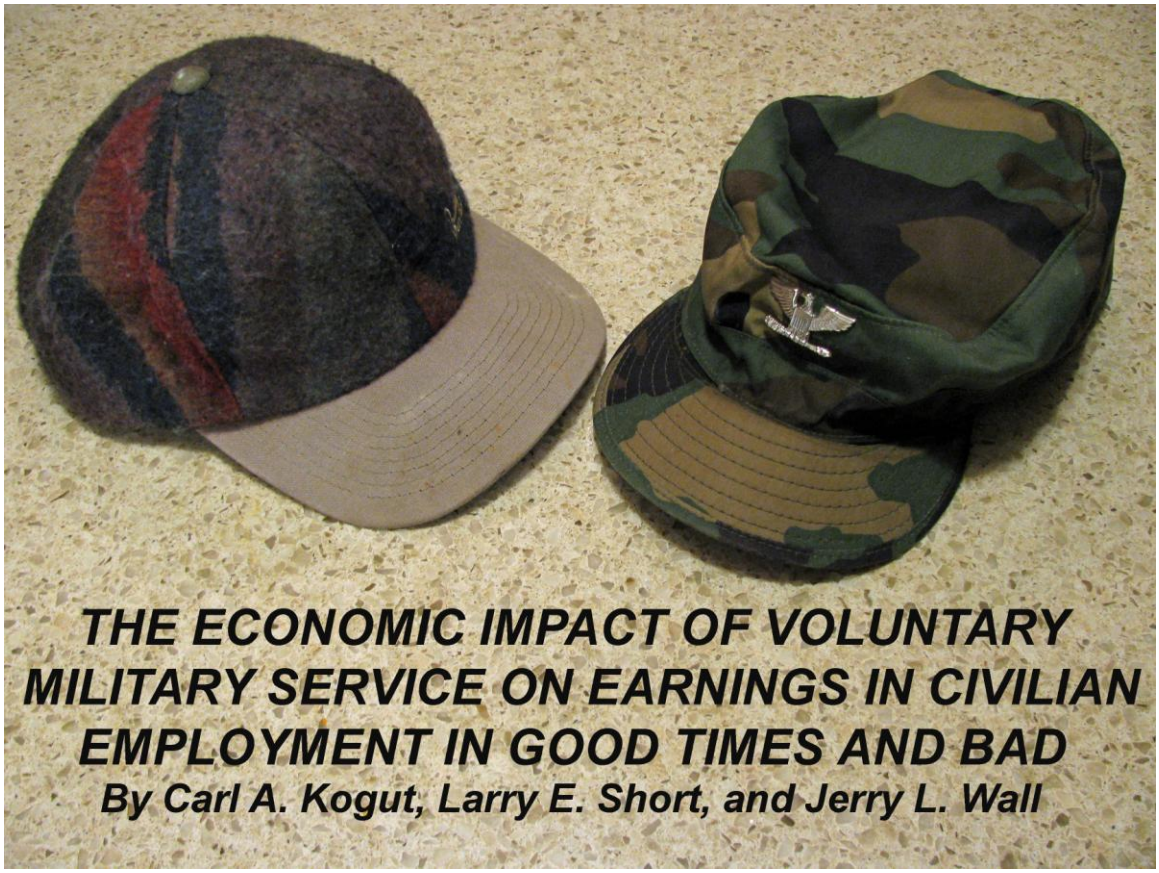

Peer Reviewed

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ABSTRACT

This article examines the impact of voluntary military service on earnings in civilian employment. The research utilizes the March 2008 and March 2009 Current Population Survey samples to compare the earnings of veterans of the all-volunteer military with non-veterans by age, race, and level of education, during good economic times and periods of recession. Results suggest that civilian employees with service in the all-volunteer military are paid a significant earnings premium over their non-veteran civilian employees in both good economic times and bad. And, with few exceptions, this earnings premium is enjoyed regardless of race, age and level of education.

INTRODUCTION

Each year the College Board reports a positive correlation between higher levels of education and higher earnings (Baum and Ma, 2007; Baum, Payea and Steele, 2006; Baum and Payea, 2005). Although these annual reports are interesting, they are not surprising. The United States has a long history of supporting education and most people accept the proposition that increased education will have a positive effect on the future economic well being of individuals. For individuals not interested in pursuing further education, or not having the option of doing so, are there other possibilities available that could have a positive impact on their economic well-being? Surely, in the United States higher education is not the only avenue to improving one's economic well-being. There could be factors other than education that impact the long-run economic well-being of individuals. Some of the most obvious might include family connections, special skills, or independent sources of wealth. But for those who are not born with an economic advantage and those who do not want to pursue higher education, is there another individual choice that can have a long run impact on the economic well being of an individual? This study examines the impact that a personal decision to join today's all-volunteer military can have on earnings in future civilian employment.

BACKGROUND

Past studies of the benefits of military service on civilian employment have often been directed toward three groups of veterans; retired members of the armed services or military academy graduates, World War II and Korean War veterans, and Vietnam War veterans. Early studies of the transition from military to civilian employment usually focused on either retired members of the armed forces or military academy graduates. A study conducted for the U.S. Senate in 1961 by faculty members of the University of Michigan found a variety of problems in the transition from military to civilian employment, but it was inconclusive concerning the effect of military service on civilian employment income. This study of 3,191 officers who had retired between 1955 and 1960 showed an easy transition to civilian employment had been made by less than one-half of the respondents, while at least one-third had some difficulty. The study concluded that officers must have retirement pay in order to maintain the economic position they had attained in the military. A study of 119 retired U.S. Naval Academy graduates from the Classes of 1930-40 who had retired by 1960 found a sharp disparity between the civilian experiences of retired officers and their expectations of the utilization of their skills by the civilian economy (Massey, 1963). Another study of retired military personnel in 1963 concluded that the average retiree made less money in his new civilian job than he did in the military (Collings, 1963).

In a report of two studies conducted in 1963 and 1964 of thousands of retired officers and enlisted men from the four services, Biderman and Sharp (1968) found that although the transfer of military skills to civilian employment had been satisfactory in most cases, expectations of incomes and use of abilities failed to reach previously held high expectations. A study conducted of the civilian careers of U.S. Military Academy

graduates from the classes of 1920 – 1949 also provided some interesting insights. The major findings suggest that most retired officers felt the education and training received at the Military Academy, and later as officers, had a strong carry-over effect to their civilian jobs and that most had been able to find employment in a wide variety of jobs and had what they considered to be fairly decent incomes from these jobs (Butler, 1972).

By the 1970s, there were many studies that investigated the impact of military service on those service men and women who were in the military for a short period of time, rather than those retiring from the services. Studies involving World War II and Korean War veterans generally found that most veterans earned more than non-veterans. Villemez and Kasarda (1976), using 1970 Census data, found that the benefit of military service was staggered downward by generation. That is, there was a positive impact for World War II veterans and a marginally positive impact for Korean War veterans, and that both WWII and Korean veterans earned more than did their non-veteran counterparts. Martindale and Poston (1979), using 1970 Census data, also found that veterans of World War II and the Korean War had higher earnings than non-veterans. Little and Fredland (1979), looking at World War II veterans twenty years after their military service also found that veterans earned more than non-veterans. The earnings advantage of veterans over non-veterans of World War II and the Korean War appeared to exist regardless of whether the veterans were white or black. Villemez and Kasarda (1976) warned, however, that the earning advantages of World War II and Korean War veterans may have been more influenced by the impact of the GI Bill on educational attainment, rather than military service itself. Fredland and Little (1979) showed that veterans who received military vocational training in World War II and who were able to use their vocational training in their jobs received long term earnings premiums.

Some studies found that the civilian income premiums for veterans of World War II and the Korean War did not carry over to Vietnam veterans (e.g. Villemez and Kasarda 1976, Martindale and Poston 1979). Card (1983) examined a carefully selected group of men who differed only in whether or not they had been in the military during the Vietnam era and concluded that Vietnam veterans were somewhat worse off relative to comparable non-veterans in terms of income. Contrary to these studies that suggested significant penalties for Vietnam veterans, a study by Berger and Hirsch (1983) found only small overall differences existed between the earnings of Vietnam-era veterans and similar non-veterans. That is, Vietnam veterans, while not earning a premium for their military service, did not suffer a significant disadvantage in earnings. Interestingly, Vietnam veterans with less than a high school education did consistently realize a veteran premium. Schwartz (1986) examined the relative earnings of veterans of two eras--Vietnam and Korea--and found that the simple average of earnings of veterans (whether of the Vietnam or the Korean area) was similar to those of non-veterans. But when other variables were held constant, two major differences appear: (1) Vietnam veterans and Korean veterans differed in their rates of return to education. Furthermore, Korean veterans had a higher rate of return to education than for non-veterans, whereas the rate of return for Vietnam veterans was lower than for non-

veterans. (2) Overall determinants of earnings for Vietnam veterans were significantly different from those for non-veterans, whereas the determinants for earnings for Korean veterans were similar to those of non-veterans. Schwartz concluded that service in Vietnam had a negative impact on the relative economic status of its surviving soldiers. Thus, it appears that World War II and Korean veterans received benefits in civilian employment from their military service while Vietnam veterans did not.

Few studies have been made of the impact of the all volunteer military on civilian employment. A study by Bryant and Wilhite (1990) found the impact of volunteer military service on civilian wages was mixed. They reported that military service decreased civilian wages, and the longer someone was in the military, the greater the differential became. On the other hand, they reported that military training increased wages, and if enough training was obtained, an individual could come out ahead. In a subsequent study, Bryant, Samaranayake and Wilhite (1993) found that the impact of voluntary military service on subsequent civilian wages differed with education and race. Blacks and Hispanics and high school dropouts benefited from a tour in the military while college graduates suffered a large wage penalty. Angrist (1998) in a study of soldiers in the 1980s found that military service was associated with higher rates of civilian employment after service, but that military service led to only a modest long-run increase in the civilian earnings of non-white veterans, while actually reducing the civilian earnings of white veterans. Hirsch and Mehay (2003) in a study of reservists found that the average impact of active-duty service on civilian earnings was about three percent. The breakout between enlisted personnel and officers was zero percent and 10 percent, respectively, and among white enlisted personnel the active-duty effects were negative, but small, while averaging about five percent for Blacks. Thus, it appears that early findings on the general impact of service in the all voluntary military suggests that the long-run civilian economic benefits for today's veterans would not be as favorable as they had been for World War II and Korean War veterans (Cooney, Segal, Segal and Falk, 2003; Prokos and Padavic, 2000; Mehay and Hirsch, 1996; Phillips, 1992) .

Why do some veterans receive an economic advantage to military service while others do not? Researchers have postulated a number of theories to explain the benefits of military experience on civilian employment. One theory is that the military provides a "bridging environment" that facilitates the movement of persons from pre-military life to civilian life. This theory centers on the valuable experience gained in military life such as work habits, punctuality, discipline and general communications skills (Browning, Lopreato and Poston, 1973). Another theory suggests that military service provides a direct impact on the stock of human capital through training. Outside of the public education system, the military is probably the largest institutionalized source of training in the US. To the extent that this training is transferable to the civilian labor market, military service should lead to higher wages. A third theory suggests that the self-selection process is the key to the military premium. If a difference exists between the income of veterans and non-veterans, it may not be attributable to the actual military experience, but to innate differences between people who enter the military and those who do not (Bryant and Wilhite, 1990).

The authors of this study are not overly concerned with whether the military experience offers a bridging environment, provides an increase in capital stock, or demonstrates the self selection of people with innate differences. We are simply trying to determine if individuals with experience in today's all-volunteer military can expect higher or lower income potential than those without military experience and whether this income differential will continue over time. Also, does service in the all-volunteer military impact civilian employment differently in good economic times and bad economic times. While we recognize that the education and experience gained through military service can vary substantially from veteran to veteran; we believe that a study such as this would be insightful because joining the military today is always a deliberate decision. This study will attempt to ascertain if the voluntary act of joining the all-volunteer military appears to result in a long-term economic benefit in future civilian employment.

PURPOSE OF THE STUDY

Many studies have been made of the civilian employment of retired professional soldiers and citizen soldiers of World War II, Korea, and Vietnam. Fewer studies have been directed specifically on the citizen soldiers of the post Vietnam era and most of those were focused on veterans with civilian employment in the 1980s. Our focus in this study is those service men and women who volunteered to enter a vastly different military than their fathers; a military that had been fundamentally changed by the crucible of the Vietnam conflict and the mission of a global war on terrorism. The question we ask is, "Have the veterans of this all-volunteer military experienced an earnings premium or an earnings penalty in their civilian employment after their military service?" Another interesting question arises with respect to the downturn in economic conditions in 2009 which is, "Has the 2009 recession impacted veterans differently than non-veterans?" Thus, the fundamental purpose of this study is to ascertain the effect that service in the all-volunteer military has upon civilian earnings—in both good and bad economic times.

METHODOLOGY

SAMPLES

Two samples were used as the basis for this study; the March 2008 and March 2009 Current Population Survey (CPS) samples. The CPS is a monthly survey of over 50,000 households conducted by the Bureau of the Census for the Bureau of Labor Statistics and is the official United States government statistics on employment and unemployment. The sample is scientifically selected to represent the civilian non-institutional population of the United States. The sample population is located in 792 sample areas comprising 2,007 counties and independent cities with coverage in every State and in the District of Columbia. Currently CPS interviews about 57,000 households monthly. The CPS is the primary source of information on labor force characteristics of the U.S. population and CPS data are used by government policy makers and legislators as important indicators of our nation's economic situation.

Since this study attempts to determine the impact that service in the all-volunteer military has upon civilian pay over the long run, the samples we used for analysis was limited by four decision rules. First, only year-round, full-time workers were included in the sample. The U.S. Bureau of Labor Statistics defines year-round workers as being employed for at least 50 weeks during a year and full-time workers as working 35 or more hours per week (BLS, 2001). Second, a minimum age restriction of 25 years was imposed to permit personnel sufficient time to complete their military service and enter the civilian workforce. Third, a maximum age restriction of 53 years was imposed to ensure that only military personnel who volunteered for military service were included in the sample. The military draft was eliminated in 1973, thus any veteran between the ages of 25 and 53 at the time the CPS data was collected would have voluntarily joined the military. Fourth, the sample was further limited to high school graduates in order to ensure an adequate comparison between cohort groups. Since it appears that almost no non-high school graduates have been permitted to join the all-volunteer military, including them in the study would not have provided an adequate sample for comparison. Two samples (2008 and 2009) were used in this study to determine the impact the 2009 recession on relative earnings between veterans and non-veterans.

SAMPLE CHARACTERISTICS

As you would expect with CPS Census data, the demographics characteristics of the 48,992 employed persons in the 2008 sample were quite similar with the 45,731 employed persons in the 2009 sample. (See Table 1 below.) In both samples about six and one-half percent had some military experience. Males were slightly more represented (56 percent) than females (43 percent). Both samples were also equally proportioned by race with about 80 percent White, 11 percent Black, and 9 percent Other. The age distributions of the two samples were almost divided into thirds. In both samples, about 29 percent were in the 25-34 age group, 37 percent in the 35-44 age group, and 34 percent in the 45-54 age group. About 30 percent of both samples had a high school education, another 30 percent had some college, and about 25 percent were college graduates. The remaining 13 percent of participants in both samples had either master's degrees or doctorate/professional degrees. It is important to remember that this sample does not reflect the overall population of the United States, but is a fairly accurate reflection of those persons, ages 25-53 that were employed for at least 50 weeks a year and worked at least 35 hours per week.

TABLE 1
SAMPLE CHARACTERISTICS

	March 2008 CPS Sample	March 2009 CPS Sample
Veteran Status		
Veteran	6.71%	6.54%
Non-veteran	93.29	93.56
Education		
High School	31.24%	30.03%
Some College	31.10	30.70
College Graduate	24.92	25.80
Masters Degree	9.26	9.45
Doc/Prof Degree	3.54	4.02
Age		
25-34	28.78%	28.91%
35-44	37.35	37.00
45-53	33.86	34.09
Race		
White	80.36%	80.23%
Black	10.96	10.62
Other	8.67	9.15
Gender		
Male	56.27%	56.84%
Female	43.72	43.16

Source: U.S. Census Bureau (2008, 2009). Current Population Survey. http://www.census.gov/cps/

HYPOTHESES

Ensuing from the above commentary, the following null hypotheses were proposed:

H_o: There will be no difference in the average earnings of veteran and non-veteran full time, year round civilian workers with at least a high school education based on education.

H_o: There will be no difference in the average earnings of veteran and non-veteran full time, year round civilian workers with at least a high school education based on age.

H_o: There will be no difference in the average earnings of veteran and non-veteran full time, year round civilian workers with at least a high school education based on race.

Although not subject to hypothesis testing, we will conjecture that there will be an apparent latent salary premium occurring for veterans relative to non-veterans as the country slipped into poorer economic times from 2008 to 2009. The reason this will not be tested concerns the difficulty in determining precisely when the economic downturn occurred and the magnitude of its overall effect.

FINDINGS

In selecting a statistical test for analysis, both a Z-test and a t-test were considered possibilities. Both tests assume that the data were independently sampled from a normal distribution and in fact for large sample sizes. Both tests utilize a standard normal distribution. Either could be used for the current study; however, the t-test of the difference between two means was chosen since this test requires no assumptions or knowledge as to the standard deviation of the underlying population. The t-test is a commonly used robust statistical measure for detecting differences in ratio data such as is reported in this study. All tests were conducted at the 95^{th} percentile confidence level, although higher levels of confidence were reported when found. This confidence level implies that the differences between the two means would occur by chance only 1 time or less out of twenty when found significant.

The t-test was used to compare the mean salaries of veterans and non-veterans to determine if significant differences occur between those with military service and those without military service. From these analyses we should be able to accept or reject the null hypotheses and postulate conclusions as to the overall economic value of voluntary military service on civilian employment.

Table 2 below shows the average earnings of full-time, year-round civilian workers ages 25 through 53 with at least a high school education by veteran status in March 2008.

TABLE 2
AVERAGE EARNINGS OF FULL-TIME, YEAR-ROUND CIVILIAN WORKERS
AGES 25 THROUGH 53 WITH AT LEAST A HIGH SCHOOL EDUCATION
MARCH 2008

	Veterans		Non-veterans		
	n	Mean $ Salary	n	Mean $ Salary	$ Difference[#]
Education					
High School	1,074	44,722	14,234	36,222	8,500**
Some College	1,347	52,580	13,849	42,884	9,696**
College Graduate	582	70,482	11,629	63,704	6,778**
Masters Degree	206	89,750	4,333	77,323	12,427**
Doc/Prof Degree	80	127,790	1,658	116,288	11,502
Age					
25-34	580	46,099	13,522	43,188	2,911*
35-44	1,340	58,428	16,961	55,352	3,076*
45-53	1,369	61,035	15,220	56,198	4,837**
Race					
White	2,594	59,258	36,777	53,266	5,992**
Black	496	48,793	4,876	42,008	6,785**
Other	199	53,629	4,050	52,924	705

*Signifies mean salaries are different with an approximate 95 percent level of confidence.
**Signifies mean salaries are different with an approximate 99 percent level of confidence.
[#]See Appendix 1 for details on statistical tests.

Full-time, year-round workers are employed at least 50 weeks per year and at least 35 hours per week.

Source: U.S. Census Bureau (2008) Current Population Survey.
http://www.census.gov/cps/

As can be seen in Table 2, the null hypotheses can be rejected at all levels of education except that of the Doctoral/Professional degree; at all levels of age; and for both Whites and Blacks, but not Other races. That is to say that differences were found between the means of each of the groups mentioned that were significant at or above the 95 percent level of confidence and will be discussed below.

As reported each year by the College Board, a positive correlation exists between higher levels of education and higher earnings, but higher levels of education

appear to pay off more for veterans than non-veterans. As can be seen in Table 2, whether discussing veterans with only a high school diploma, veterans with some college but no degree, veterans with a college degree, and veterans with a masters degree, veterans earned significantly higher salaries than non-veterans with comparable education levels. Only at the doctorate or professional degree level was there no significant differences in salaries, but even here the tendency was present. The lack of a significant difference between veterans and non-veterans at the doctorate and professional degree level may be affected by very small sample size in the pool of veterans with this level of education.

The earnings premium of veterans over non-veterans was also evident when the sample was categorized by age and race. Veterans in all three age groups (i.e., 25-34, 35-44, and 45-53) had significantly higher salaries than non-veterans in the same group. Furthermore, both White and Black veterans earned significantly higher salaries than White and Black non-veterans. Salaries in the Other category of race were not significantly different between veterans and non-veterans, but again the tendency to favor veterans was present, and the sample of veterans was small.

Since the U.S. economy entered a rather severe recession shortly after we initially gathered data for this study in March 2008, we thought it would be interesting to determine if the earnings premium enjoyed by veterans in good economic times carried over to poorer economic times. In March 2008, the overall unemployment rate in the United States was 5.1 percent. By March 2009, the unemployment rate deteriorated to 8.5 percent (Bureau of Labor Statistics, 2009). Table 3 below shows the average salaries of full-time, year-round civilian workers ages 25 through 53 with at least a high school education by veteran status in March 2009. The findings in March 2009 are quite similar to the findings in March 2008 and again would allow rejection of the null hypotheses for most categories of education, age and race. Veterans at all levels of education, except doctorate and professional degree level, again earned significantly higher salaries than non-veterans with similar education levels. The small sample size of the highest education category may have again affected results. Furthermore, White and Black veterans earned significantly higher salaries than White and Black non-veterans. The only difference between March 2008 and March 2009 was found among the age categories. Veterans in the two older age groups (i.e., 35-44 and 45-53) continued to earn significantly higher salaries than non-veterans in the same age groups. However, the salary difference at the lowest age group (i.e., 25-34), although higher for veterans, was not significantly different from non-veterans. Given the economic recession, this finding was not unexpected and will be discussed next.

TABLE 3
AVERAGE EARNINGS OF FULL-TIME, YEAR-ROUND CIVILIAN WORKERS
AGES 25 THROUGH 53 WITH AT LEAST A HIGH SCHOOL EDUCATION
MARCH 2009

	Veterans		Non-veterans		
	n	Mean $ Salary	n	Mean $ Salary	$ Difference[#]
Education					
High School	941	46,824	12,791	37,130	9,694**
Some College	1,208	54,091	12,834	43,996	10,095*
College Graduate	556	74,074	11,242	67,234	6,840**
Masters Degree	224	96,893	4,097	80,936	15,957**
Doc/Prof Degree	64	142,817	1,774	120,796	22,021
Age					
25-34	470	47,280	12,749	45,014	2,266
35-44	1,231	62,574	15,690	57,939	4,635**
45-53	1,292	63,609	14,299	60,029	3,580*
Race					
White	2,405	62,666	34,286	56,131	6,535**
Black	405	50,469	4,452	43,253	7,216**
Other	183	56,179	4,000	56,052	127

*Signifies mean salaries are different with an approximate 95% level of confidence.
**Signifies mean salaries are different with an approximate 99% level of confidence.
[#]See Appendix 2 for details on statistical tests.

Full-time, year-round workers are employed at least 50 weeks per year and at least 35 hours per week.

Source: U.S. Census Bureau (2009) Current Population Survey.
http://www.census.gov/cps/

Table 4 below compares the difference between average salaries of veterans and non-veterans in March 2008 and March 2009. The salary premium difference between veterans and non-veterans grew between 2008 and 2009 when the data was examined by educational levels and race—excluding the Other category of race which suffers from small sample size. This would seem to indicate that the conjecture posited earlier is correct in most cases. That is to say that even in poorer economic times, veterans, as a group, showed a greater increase in salaries than their non-veteran counterparts when examined by education and race. In the age group of 35-44, the salary premium of veterans also grew over non-veterans from 2008 to 2009. In the other two age groups (i.e., 25-34 and 45-53) however, the salary premium decreased in 2009

from 2008, suggesting that the younger and older veterans were receiving slightly lower pay raises than their non- veteran counterparts. One possible explanation for this phenomena is that the average annual salary differences are small ($645 and $1,257 respectively) and are statistically insignificant differences when compared to total salary. Furthermore, the youngest age group has a greater likelihood to suffer in times of economic hardship since most companies practice a LIFO (last-in, first-out) policy to layoffs or terminations. Veterans would not have had the opportunity to build up as much service credit because of military service, hence would be more likely to be affected by an economic downturn, particularly in the case of layoffs or hiring affected by unions.

TABLE 4
COMPARISON OF THE DIFFERENCES IN THE AVERAGE SALARIES OF VETERANS AND NON-VETERANS* IN MARCH 2009 AND MARCH 2009

	March 2008 Salary Differences Between Veterans and Non-veterans	March 2009 Salary Differences Between Veterans and Non-veterans
Education		
High School	8,500	9,694
Some College	9,696	10,095
College Graduate	6,778	6,840
Masters Degree	12,427	15,957
Doc/Prof Degree	11,502	22,021
Age		
25-34	2,911	2,266
35-44	3,076	4,635
45-53	4,837	3,580
Race		
White	5,992	6,535
Black	6,785	7,216
Other	705	127

*Both veterans and non-veterans were full-time, year-round civilian workers, aged 25 through 53 with at least a high school education.

Source: U.S. Census Bureau (2008, 2009) Current Population Survey. http://www.census.gov/cps/

CONCLUSIONS

Prior to 1973, the military operated on an involuntary draft system that provided the necessary level of manpower to staff the armed forces. The war in Vietnam resulted in examination of the efficacy and wisdom of an involuntary draft system. Subsequently the country embarked on an all-volunteer military that has served the country through many conflicts throughout the world—some very small and others ultimately involving hundreds of thousands of military personnel. While many criticisms have been levied at this all-volunteer force—and there is little doubt that it has waxed and waned in effectiveness over the last 36 years—in the main it has functioned efficiently and effectively to fight wars and remains the greatest military force in existence today. Despite the naysayers, the all-volunteer military force appears to be smarter, stronger and more disciplined than the drafted force ever was (Aspin, 1991). Available performance criteria and retention rates throughout the military have risen in recent years despite facing protracted wars in the Gulf and Afghanistan.While some attribute

the success of retention and volunteerism to a declining economy (Warner, 2008), others point to generational studies that reflect greater inclination among young people to perform public service (Yonkman and Bridgeland, 2009). Regardless of the reason for volunteering or remaining in the military, it is heartening to see that the public appears to support the military through providing veterans greater pay as they embark upon civilian employment.

Although it is impossible to control for variability in the length of military service or the variety and type of military education because of a paucity of data, we believe the current study is very insightful. It is apparent from this study that veterans enjoy a salary premium over non-veterans in civilian employment when compared by education levels, age groupings, and race. This salary premium continues in good economic times and bad. While other studies have attempted to determine the underlying difference for such a salary premium, we are not concerned whether the military experience provides a bridging environment from non-employment to full-time civilian employment, an increase in value of the individual through experience or training, or demonstrates the self selection of people with innate differences. Our interest is that an individual looking for a way to add dollars of value to his/her civilian earning over a life time could consider the all-volunteer military as an instrument to increase life time earnings. For example, in 2009 veterans with only a high school diploma earned an average salary of $46,824 compared to $37,130 for non-veterans with the same level of education. In 2009, a veteran could expect to receive almost $7,000 more annually with a college degree, and almost $16,000 more annually with a master's degree than non-veterans with similar education. In short, our study provides evidence that the rewards of civilian employment for military veterans are significantly better than those enjoyed by their counterparts who never served in the military.

REFERENCES

Angrist, J.D. (1998). "Estimating the Labor Market Impact of Voluntary Military Service Using Social Security Data on Military Applicants," *Econometrica*, Vol. 66, No. 2, pp. 249-288.

Aspin, L., All Volunteer: A Fair System, A Quality Force (Washington, DC: Chairman, House Committee on Armed Services, April 26, 1991) (26th annual Department of Defense (DoD) report on social representation in the U.S. Military Services.)

Baum, Sandy & Jennifer Ma (2007). *Education Pays: The Benefits of Higher Education for Individuals and Society, Trends in Higher Education Series*. Washington, DC: The College Board.

Baum, Sandy, Kathleen Payea & Patricia Steele (2006). *Education Pays Second Update: A Supplement to Education Pays 2004: The Benefits of Higher Education for Individuals and Society, Trends in Higher Education Series*. Washington, DC: The College Board.

Baum, Sandy & Kathleen Payea (2005). *Education Pays Update: A Supplement to Education Pays 2004: The Benefits of Higher Education for Individuals and Society, Trends in Higher Education Series*. Washington, DC: The College Board.

Berger, M.C. and B.T. Hirsch (1983). "The Civilian Earning Experience of Vietnam-Era Veterans." *Journal of Human Resources*, Vol. 18, No. 4, pp. 455-479.

Biderman, A.D. & L.M. Sharp (1968). "The Convergence of Military and Civilian Occupational Structures; Evidence from Studies of Military Retired Employment," *The American Journal of Sociology*, Vol. 73, pp. 381-399.

Browning, H.L., S.C. Lopreato, and D.L. Poston, Jr. (1973). "Income and Veterans Status: Variations Among Mexican Americans, Blacks, and Anglos," *American Sociological Review*, Vol. 38, pp. 74-85.

Bryant, R. and A. Wilhite (1990). "Military Experience and Training Effects on Civilian Wages," *Applied Economics*, Vol. 22, pp. 69-81.

Bryant,R., V.A. Samaranayake and A. Wilhite. (1993). "The Effect of Military Service on the Subsequent Civilian Wage of the Post-Vietnam Veteran," *Quarterly Review of Economics and Finance, Vol. 33, No. 1, pp. 15-31.*

Butler, R.P, (1972). *Civilian Careers of USMA Graduates*, Office of Institutional Research, United States Military Academy, West Point, NY.

Card, J.J. (1983). *Lives After Vietnam*. Lexington, Mass.: Lexington Books.

Collings, K. J. (1963). Employment of Retired Military Officers in the West Coast Areas: A Pilot Study. Unpublished master's thesis, University of Washington.

Fredland, J.E. and R.D. Little (1980). "Long-Term Returns to Vocational Training: Evidence from Military Sources." *Journal of Human Resources*, Vol. 15, No. 1, pp. 49-66.

Hirsch,B.T. and S.L. Mehay. (2003). "Evaluating the Labor Market Performance of Veterans Using a Matched Comparison Group Design," *Journal of Human Resources*, Vol. 38, No. 3 pp. 673-700.

Kogut, Carl A., Larry E. Short, and Jerry L. Wall, (2010). "Estimating the Increase in Wages from Military Service," *Journal of Economics and Economic Research.* March 1, 2010. Vol. 11, No. 2, http://www.thefreelibrary.com/Estimating+the+increase+in+wages+from+military+service.-a0241946054.

Little, R.D. and J.E. Fredland (1979). "Veterans Status, Earning, and Race," *Armed Forces & Society*, Vol. 5, No. 2, Winter 1979, pp. 244-260.

Martindale, M. and D.L Poston, Jr. (1979). "Variations in Veteran/Nonveteran Earnings Patterns Among World War II, Korea, and Vietnam War Cohorts, " *Armed Forces & Society*, Vol 5, No 2, Winter 1979, pp. 219-243.

Massey, R.J. (1963). *A Study of the Integration of Retired Naval Academy Graduates into the National Economy*, Unpublished doctoral dissertation, The American University.

Schwartz, S. (1986). "The Relative Earnings of Vietnam and Korean-era Veterans," *Industrial and Labor Relations Review*, Vol. 39, No. 4, July.

TED: The Editor's Desk (2008). "Working full time, year round at new high in 2000," U.S. Bureau of Labor Statistics. http://data.bls.gov/cgi-bin/print.pl/opub/ted/2001/Nov/wk1/arto3.htm Accessed October 1, 2008.

U.S. Bureau of Labor Statistics (2009). *Labor Force Statistics from the Current Population Survey*. http://data.bls.gov. Data extracted on September 26, 2009.

U.S. Census Bureau (2008). Current Population Survey. http://www.census.gov/cps/

U.S. Census Bureau (2009). Current Population Survey. http://www.census.gov/cps/

Warner, J. T., J. C. Miller III, and B. J. Asch. "*Economics and the All-Volunteer Force,"* American Economic Association Meetings, New Orleans, LA, January 5, 2008.

Yonkman, M. M. and J. M. Bridgeland, J. M. “All Volunteer Force,” Civic Enterprises, November 11, 2009.

Note: Photo by Carole E. Scott

See Appendixes below

Appendix 1
Statistical Analysis Table 2 (2008)

Characteristic		Sample	Mean $	Std. Dev. $	Std. Err. $	T-Value*	Significance
Education	High School Veteran	1,074	44,722	30,116	919		
	High School Non-Vet.	14,234	36,222	33,039	277	8.86	<.0001
	Some College Veteran	1,347	52,580	38,980	1,062		
	Some College Non-Vet.	13,849	42,884	34,764	295	8.80	<.0001
	College Veteran	582	70,482	65,198	2,703		
	College Non-Vet.	11,629	63,704	56,715	526	2.46	0.0141
	Masters Veteran	206	89,750	70,258	4,895		
	Masters Non-Vet.	4,333	77,323	68,069	1,034	2.56	0.0106
	Doc./Prof. Veteran	80	127,790	116,830	13,062		
	Doc./Prof. Non-Vet.	1,658	116,288	111,881	2,748	0.90	0.3702
Age	25 - 34 Veteran	580	46,099	31,511	1,308		
	25 - 34 Non-Vet.	13,522	43,188	38,841	334	2.16	0.0315
	35 -44 Veteran	1,340	58,428	47,502	1,298		
	35 - 44 Non-Vet.	16,961	55,352	56,202	432	2.25	0.0246
	45 - 53 Veteran	1,369	61,035	59,259	1,602		
	45 - 53 Non-Vet.	15,220	56,198	57,847	469	2.96	0.0031
Race	White Veteran	2,594	59,258	54,163	1,063		
	White Non-Vet.	36,777	53,266	53,247	278	5.53	<.0001
	Black Veteran	496	48,793	31,986	1,436		
	Black Non-Vet.	4,876	42,008	47,906	686	4.26	<.0001
	Other Veteran	199	53,629	40,951	2,903		
	Other Non-Vet.	4,050	52,924	50,675	796	0.23	0.815

*Pooled Equal Variance or Satterthwaite Unequal Variance T-test as appropriate.

Appendix 2
Statistical Analysis Table 3 (2009)

Characteristic		Sample	Mean $	Std. Dev. $	Std. Err. $	T-Value*	Significance
Education	High School Veteran	941	46,824	31,547	1,028		
	High School Non-Vet.	12,791	37,130	29,966	265	9.13	<.0001
	Some College Veteran	1,208	54,091	38,675	1,113		
	Some College Non-Vet.	12,834	43,996	33,133	292	8.77	<.0001
	College Veteran	556	74,074	58,084	2,463		
	College Non-Vet.	11,242	67,234	59,758	564	2.64	0.0083
	Masters Veteran	224	96,893	71,703	4,791		
	Masters Non-Vet.	4,097	80,936	67,270	1,051	3.44	0.0006
	Doc./Prof. Veteran	64	142,817	123,993	15,499		
	Doc./Prof. Non-Vet.	1,774	120,796	107,388	2,550	1.60	0.1092
Age	25 - 34 Veteran	470	47,280	27,872	1,286		
	25 - 34 Non-Vet.	12,749	45,014	36,498	323	1.71	0.0879
	35 -44 Veteran	1,231	62,574	53,496	1,525		
	35 - 44 Non-Vet.	15,690	57,939	56,257	449	2.92	0.0036
	45 - 53 Veteran	1,292	63,609	54,272	1,510		
	45 - 53 Non-Vet.	14,299	60,029	61,484	514	2.24	0.0249
Race	White Veteran	2,405	62,666	52,974	1,080		
	White Non-Vet.	34,286	56,131	54,940	297	5.83	<.0001
	Black Veteran	405	50,469	43,566	2,165		
	Black Non-Vet.	4,452	43,253	40,479	607	3.21	0.0014
	Other Veteran	183	56,179	34,637	2,561		
	Other Non-Vet.	4,000	56,052	52,476	830	0.05	0.9624

*Pooled Equal Variance or Satterthwaite Unequal Variance T-test as appropriate.