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**NAVAL
POSTGRADUATE
SCHOOL**

MONTEREY, CALIFORNIA

THESIS

NONCITIZENS IN THE U.S. MILITARY

by

Lynn G. O'Neil
Omer S. Senturk

March 2004

Thesis Co-Advisors:

Mark J. Eitelberg
Stephen L. Mehay

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NONCITIZENS IN THE U.S. MILITARY

Lynn G. O'Neil
Lieutenant Commander, United States Naval Reserve
B.S., United States Naval Academy, 1988

Submitted in partial fulfillment of the
requirements for the degree of

MASTER OF BUSINESS ADMINISTRATION

Omer S. Senturk
1st Lieutenant, Turkish Army
B.S., Turkish Army Academy, 1999

Submitted in partial fulfillment of the
requirements for the degree of

MASTER OF SCIENCE IN MANAGEMENT

from the

**NAVAL POSTGRADUATE SCHOOL
March 2004**

Authors: Lynn O'Neil

Omer S. Senturk

Approved by: Mark J. Eitelberg
Thesis Co-Advisor

Stephen L. Mehay
Thesis Co-Advisor

Douglas A. Brook
Dean, Graduate School of Business and Public Policy

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ABSTRACT

The authors examine the history of immigrant military service in the United States, explore the motivations of noncitizen enlistees, and analyze the military performance of noncitizens relative to that of citizen enlistees. Information sources include a comprehensive review of literature, focused interviews with a small sample of noncitizen enlistees, and cohort data files of enlisted personnel who entered the military from 1990 through 1998. The history of noncitizen service corresponds roughly to the nation's history of immigration and naturalization policy, with military service having offered immigrants economic benefits, as well as a path toward assimilation. Service by noncitizens has also provided the country a way to meet its military manpower needs. The results of statistical analyses suggest noncitizens have lower predicted rates of first-term attrition, and higher estimated rates of retention beyond the first term and promotion to E-4. The authors conclude that noncitizens provide a valuable source of manpower, and fulfill important roles as influencers for the next generation. Thus, it may be worthwhile to provide noncitizens more information about enlistment opportunities, and to implement unique reenlistment incentives including expedited green-card status for family members. Future research should examine specific ethnic categories of interest within the population of noncitizens.

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I. NONCITIZENS IN THE U.S. MILITARY

We are the Romans of the modern world, the great assimilating people.¹

A. BACKGROUND

Throughout the history of the United States, immigrants have formed the bedrock upon which the nation was built. Their thirst for opportunity and willingness to sacrifice has shaped U.S. society in lasting and important ways. From the start, citizenship has been a reward for immigrants' persistence and contributions. The concept of citizenship for military service is deeply rooted in American tradition.² Over the years, the nation's need for military manpower has provided an opportunity for immigrants to achieve the legitimacy and benefits associated with citizenship. Since 1862, Congressional legislation has provided for the naturalization of more than 660,000 military veterans.³

Immigration history and policy have shaped the course of the United States, an "immigrant nation" from the start, and affected military personnel policy in a significant way. To gain an appreciation of the interconnected nature of immigration and military service, it is helpful to understand the dialectical process between history and policy and its corresponding effect on noncitizens who serve.

One may gain a deeper understanding of the individuals who currently serve as noncitizen enlistees by exploring their histories and motivations in the context of a broader canvas. Many of these personal histories are tied directly to U.S. policy. The combination of personal and global perspectives paints a more expansive picture of the U.S. military and the nation.

¹ Oliver Wendell Holmes quoted in John Higham, *Strangers in the Land* (New York: Atheneum, 1963), 21.

² James B. Jacobs, and Leslie Anne Hayes, "Aliens in the U.S. Armed Forces," *Armed Forces and Society* 7, no. 2 (1981): 188.

³ Darlene C. Goring, "In Service to America: Naturalization of Undocumented Alien Veterans," *Seton Hall Law Review*, 31 (2000): 402.

To determine objectively the success of noncitizen enlistees, one may statistically analyze their performance relative to citizen enlistees. Three traditional measures of early success used in military manpower studies are first-term attrition, retention beyond the first-term, and promotion to E-4. Statistical models to predict success in these three areas provide an empirical basis on which to assess noncitizen enlistees' performance the first several years of their enlistments.

B. PURPOSE OF THE STUDY

The purpose of this research is to provide a better understanding of an important minority group in the military, and one that military scholars have studied very little. This thesis examines the historical aspect of immigrant military service, and explores the motivations of noncitizen enlistees. It also presents an analysis of noncitizens' military success relative to citizen enlistees. The results presented here may have valuable implications for recruiting and retention of this population.

C. ORGANIZATION OF THE THESIS

Chapter II provides a comparison of immigration and naturalization policy with the history of noncitizens in the military since the nation's founding. Chapter III discusses noncitizens' motivations to enlist, and includes the impressions gained from interviews with ten individuals who enlisted as noncitizens. Chapter IV presents statistical analyses of the predicted success of noncitizen enlistees. Measures of success are analyzed for the Army, Navy, Air Force, and Marine Corps, with results presented for each service. Finally, Chapter V provides a summary of the results of the study, conclusions, and recommendations for policy makers and researchers.

II. LITERATURE REVIEW: IMMIGRATION AND NATURALIZATION POLICY AND THE MILITARY SERVICE OF NONCITIZENS

A. ERAS OF IMMIGRATION

Four major eras of immigration can be identified in U.S. history.⁴ The first, the pre-industrial era, began before the birth of the country and continued until 1820. During this time, immigration consisted mainly of African slaves and Northern Europeans traveling to the New World. The European immigrants were drawn by enormous economic opportunity, including the possibility of domestic migration westward.⁵ Since the states and the federal government did not begin tracking immigration until the 1820s, an accurate count of the total number of immigrant arrivals is not available. Nevertheless, it is estimated that one-million immigrants traveled to the United States during the period 1790-1845.⁶ Foreign-born individuals are believed to have comprised about 13 percent of the population in 1790, and a little over 10 percent by 1820.⁷

The second era, from 1840-1860, was the First Great Wave of industrial-era migration.⁸ An estimated 4,311,465 individuals⁹ immigrated from Africa and from Northern and Western European countries. Political turmoil and poor harvests were the driving force behind the European exodus. This “push” factor, coupled with the “pull” of economic opportunity in America, resulted in a flood of migration.

⁴ Louis DeSipio, and Rodolfo O. de la Garza, *Making Americans, Remaking America*, (Boulder, Colorado: Westview Press, 1998), 16-17.

⁵ *Ibid.*, 29.

⁶ Ernest Rubin, “United States,” in *Economics of International Migration*, ed. by Brinley Thomas (New York: St. Martin’s Press, 1958), 133.

⁷ *Ibid.*, 136.

⁸ DeSipio and de la Garza, *Making Americans, Remaking America*, 29.

⁹ U.S. Citizenship and Immigration Services, <http://uscis.gov/graphics/shared/aboutus/statistics/IMM02yrbk/IMM2002list.htm>. Accessed January 2004.

The third era, or Second Great Wave of industrial-era migration, occurred in the years 1870-1920. An estimated 26,277,565 people immigrated to the United States,¹⁰ with large numbers of “new” immigrants coming from Southern and Eastern Europe during the period 1890-1920. The migration of Asians and Latin Americans was also notable.

The fourth and final era of immigration began in 1965 and continues to the present. During this era of post-industrial migration, it is believed that over twenty-five million¹¹ legal immigrants have traveled to the United States thus far. Countless more undocumented immigrants have entered the U.S. during this time, with up to 300,000 emigrating from other countries each year.¹² An estimated nine million undocumented immigrants were living in the United States as of March 2002.¹³

The timeframes not included in the four eras of immigration are the years of the Civil War and its aftermath, the years between the two World Wars of the twentieth century, and the period that begins in 1941 and continues through the first half of the Cold War era. The discussion of immigration policy that follows looks at the history of immigration in these periods.

B. PERIODS OF IMMIGRATION AND NATURALIZATION POLICY

Immigration and naturalization policy may be viewed along a continuum that begins with the years 1787-1874. This period encompasses the first and second eras of immigration, and is marked by relatively little state or federal regulation of the immigration process. The periods 1875-1918 and 1919-1964 are marked by the increasing prominence of the federal government in formulating policy. National-origin quotas based on census data¹⁴ are the hallmark of the 1919-1964 period. The contemporary period began in 1965 and

¹⁰ Ibid.

¹¹ Ibid.

¹² DeSipio and de la Garza, *Making Americans, Remaking America*, 53.

¹³ The Urban Institute, <http://www.urban.org/Template.cfm?NavMenuID=24&template=/TaggedContent/ViewPublication.cfm&PublicationID=8685>, accessed January 2004.

¹⁴ Census data from 1890 and 1910 formed the basis for these quotas.

continues to the present day. The policy implemented in these years is notable for its elimination of the national-origin quota system, its promotion of family reunification, and for the increase in illegal immigration since the 1970s.

The following sections present a review of immigration and naturalization policy in each of these three periods, followed by the corresponding history of noncitizen military service during these years. Underlying this review is the critical linkage between policy and history that influences present-day America.

1. 1787 - 1874

a. *Immigration and Naturalization Policy*

Prior to 1875, the United States subscribed to an immigration policy that may be best described as neutral, with the exception of the Alien and Sedition Acts of 1798.¹⁵ While the nation's borders were unrestricted, the federal government's only role was to process immigrants at ports of arrival.¹⁶

Under Article 1, Section 8 of the Constitution, Congress is granted the power "to establish a uniform rule of naturalization." Upon ratification of the Constitution in 1789, United States citizenship was granted to all residents of the thirteen original colonies.¹⁷ On March 26, 1790, the first naturalization act was passed. Free, white, adult men and women with a minimum of two years of residency in the United States were eligible for citizenship. Local, state and federal courts were all granted naturalization authority.¹⁸

In 1798, Federalists passed the Alien and Sedition Acts, fearing that immigrant loyalties might propel the United States into the Napoleonic Wars, and seeing an opportunity to weaken the opposition Republican party.¹⁹ The residency requirement for petition of citizenship was increased to five years, and

¹⁵ Charles B. Keely, *U.S. Immigration: A Policy Analysis* (New York: The Population Council, 1979), 8.

¹⁶ DeSipio and de la Garza, *Making Americans, Remaking America*, 41.

¹⁷ U.S. Citizenship and Immigration Services, <http://uscis.gov/graphics/aboutus/history/since07.htm>, accessed January 2004.

¹⁸ Eilleen Bolger, "Background History of the United States Naturalization Process," in *Colorado Archives*, <http://www.archives.state.co.us/natinfo.htm>, accessed January 2004.

¹⁹ DeSipio and de la Garza, *Making Americans, Remaking America*, 79.

applicants were required to publicly declare their intent to naturalize three years in advance. All the Acts were repealed or expired after Thomas Jefferson took office in 1801. In 1802, Congress legislated that courts were to register the entry of all aliens who arrived in the United States. For the remainder of the century, no major naturalization legislation was passed.

In 1864, during the height of the Civil War, Congress passed legislation to encourage immigration. The federal government agreed to pay immigrants' transportation costs in exchange for future labor. The only other times since 1868 that Congress has passed legislation encouraging immigration were during the First and Second World Wars.²⁰ On July 28, 1868, the concept of national citizenship was codified with the passage of the Fourteenth Amendment to the Constitution.

b. Military Service of Noncitizens

As the need for civilian manpower trumped nativist sentiments during the first period of immigration policy, the need for military manpower likewise influenced the policy of the armed services in these years. The precedent for a linkage between citizenship and military service existed as far back as the days of the Roman Republic.²¹ During the Revolutionary War, the Continental Congress granted citizenship to enemy troops who agreed to switch sides and fight with the Continental forces,²² and some colonial militias offered the reward of state citizenship to noncitizens who joined their ranks.²³

²⁰ Ernest Rubin, "United States," 137.

²¹ Charlotte E. Goodfellow, *Roman Citizenship: A Study of Its Territorial and Numerical Expansion from the Earliest Times to the Death of Augustus* (Lancaster, Pennsylvania: Lancaster Press, 1935), 58.

²² F. G. Franklin, *The Legislative History of Naturalization in the United States* (New York: Arno Press, 1969), 5.

²³ Cara Wong, "Citizenship for Service: Substitution, Commutation, and "Green Card Troops,"" Paper presented at the University of California, Berkeley, Institute of Governmental Studies Conference, "A Nation of Immigrants: Ethnic Identity and Political Incorporation," May 2-3, 2003, 3.

During the War of 1812, the only immigrants excluded from service were those who posed a security risk, including British sailors.²⁴ After the War of 1812, and through the 1950s, both peacetime and wartime enlistment was legally restricted to individuals who were citizens of any state. In practice, however, these laws were ignored.²⁵ By the 1840s, immigrants comprised 47 percent of the Army's enlistees, and fought alongside their citizen counterparts in the Mexican-American War.²⁶

During the Civil War, the majority of immigrant enlistees were of German and Irish descent. In some cases, entire battalions of immigrants were recruited from individual U.S. cities or counties.²⁷ In forming its conscription policy in 1862, the Confederacy did not distinguish between immigrants who declared the intention to become citizens (declarant aliens) and those who did not (nondeclarant aliens). Unless exempted by municipal or international law, all white male residents between the ages of thirty-five and forty-five were eligible for conscription.²⁸

In the same year, Secretary of State Steward included nondeclarant aliens who had ever exercised the right to vote in America in the pool of men eligible for conscription by the Union forces. In 1863, Congressional legislation narrowed the immigrant conscription pool to include only declarant aliens. However, in 1864 the supply of eligible draftees was widened again, to include nondeclarants who had ever voted or held public office.²⁹ At the same time, immigrants who did not comply with conscription policy risked

²⁴ James B. Jacobs, and Leslie Anne Hayes, "Aliens in the U.S. Armed Forces," 188.

²⁵ Nancy Gentile Ford, *Americans All! Foreign-Born Soldiers in World War I* (College Station, Texas: Texas A&M University Press, 2001), 48.

²⁶ Russell F. Weigley, *History of the United States Army* (New York: The Macmillan Company, 1967), 168.

²⁷ Roma Sachs, "They May Not Have Been American-Born, but They Fought America's Civil War with Fervor Nonetheless," *Military History* 10, no. 4 (1993): 20.

²⁸ Ella Lonn, *Foreigners in the Confederacy* (Chapel Hill: The University of North Carolina Press, 2002), 386.

²⁹ James B. Jacobs, and Leslie Anne Hayes, "Aliens in the U.S. Armed Forces," 192.

deportation.³⁰ Those who were not eligible for the draft, but enlisted nonetheless, were often allowed to choose their regiments.³¹ They, like their citizen counterparts, were eligible for federal, state, and local enlistment bounties.³²

In 1864, in response to complaints by European leaders about the alleged illegal recruiting methods of the U.S. federal government, Secretary of State Seward publicly stated that foreigners received no special incentives to enlist, and that enlistments occurred only after immigrants arrived in America.³³ The laws of European countries prohibited the federal government from recruiting in Europe, but there was no such prohibition against state governments recruiting abroad. As a result, Northern states solicited European citizens for military service, though the Europeans' employment contracts did not specify they would enlist in the Union Army upon arrival.³⁴

Occasionally, enterprising Union recruiters would forcibly enlist foreign residents, sailors, and visitors in America through kidnapping and drugging.³⁵ Some Canadian citizens were taken from their homeland against their will and forced to enlist. Others were lured with the promise of civilian work at high wages. Once they arrived, they were told the work they had been promised was not available, and coerced into enlisting.³⁶

In all, approximately 20-25 percent of the 2.5 million enlistees in the Union and Confederate militaries were immigrants.³⁷ Since most immigrants arrived at Northern ports, it is not surprising that the Union Army had the

³⁰ Nancy Gentile Ford, *Americans All! Foreign-Born Soldiers in World War I*, 149.

³¹ Eugene Converse Murdock, *One Million Men: The Civil War Draft in the North* (Westport, Connecticut: Greenwood Press, 1971), 190.

³² Eugene Converse Murdock, *Patriotism Limited 1862-1865* (U.S.A.: The Kent State University Press, 1967), 18-19.

³³ Ella Lonn, *Foreigners in the Union Army and Navy* (Baton Rouge: Louisiana State University Press, 1951), 406.

³⁴ Eugene C. Murdock, *One Million Men: The Civil War Draft in the North*, 317-21.

³⁵ Ella Lonn, *Foreigners in the Union Army and Navy*, 452-58.

³⁶ *Ibid.*, 459-463.

³⁷ *Ibid.*, 578-80.

preponderance of noncitizen enlistees. Indeed, roughly 90 percent of all noncitizens who served in the Civil War were enrolled in the Union's military.³⁸ Only about 5 percent of the 1 million Confederate forces were foreign-born. By comparison, the Confederate states had roughly 13.4 percent of the foreign-born population in America.³⁹

Immigrant veterans of both the North and South, unlike other immigrants, were not required to submit "first papers" declaring their intent to petition for citizenship, nor were they required to complete five years of residency in America before petitioning.⁴⁰ In keeping with the concept of trading citizenship for service, a policy that existed since the birth of the United States, Congress passed legislation in 1862 permitting nondeclarant aliens who had served honorably and had one year of residence in America to petition for citizenship. The Confederacy passed similar legislation for its noncitizen enlistees in 1861.⁴¹

2. 1875 - 1918

a. Immigration and Naturalization Policy

In 1876, the Supreme Court ruled that only Congress could regulate immigration, in accordance with Article I, Section 8 of the Constitution.⁴² This ruling ended the practice of immigrants attaining U.S. citizenship through state and local courts. The previous year, Congress passed legislation prohibiting the immigration of criminals, prostitutes, and contract labor from Asia.⁴³ The main purpose of the anti-contract labor provisions was to make

³⁸ Roma Sachs, "They May Not Have Been American-Born, but They Fought America's Civil War with Fervor Nonetheless," 20.

³⁹ Ella Lonn, *Foreigners in the Confederacy* (Chapel Hill: The University of North Carolina Press, 2002), 200.

⁴⁰ Cara Wong, "Citizenship for Service: Substitution, Commutation, and "Green Card Troops," 5.

⁴¹ James B. Jacobs, and Leslie Anne Hayes, "Aliens in the U.S. Armed Forces," 194.

⁴² Charles B. Keely, *U.S. Immigration: A Policy Analysis*, 11.

⁴³ DeSipio and de la Garza, *Making Americans, Remaking America*, 37.

organized recruitment of foreign labor illegal, as the practice undercut the wages, working conditions, and organization efforts of U.S. laborers.⁴⁴ In practice, however, the new law did not deter potential immigrants.⁴⁵

After the transcontinental railroad was completed in 1862, numerous White laborers from the East moved West. Chinese laborers who had worked on the railroad were subsequently imported to the East to replace workers who were increasingly dissatisfied with their working conditions. Eastern organized labor unions opposed the arrival of Chinese workers and lobbied for legislation prohibiting their employment. In 1882, largely on the basis of this lobbying effort, Congress passed legislation that barred the immigration of Chinese laborers, or “coolies,” for ten years.⁴⁶ In 1885, the anti-contract labor legislation was extended to all nationalities, though it was weakly enforced.⁴⁷ An 1892 law, the Geary Act, extended the ban on Chinese workers, and resulted in a large influx of Japanese immigrants to fill the void of cheap labor.⁴⁸ By the start of the twentieth century, immigrants from Mexico became the substitute of choice for Chinese laborers.⁴⁹

The wave of “new” immigrants from Southern and Eastern Europe began in the 1880s, and was followed by increasingly restrictive immigration legislation. In 1891 Congress passed legislation establishing the Bureau of Immigration to enforce immigration laws. Increasingly exclusionary immigration laws were passed in 1903, 1907, and 1917.⁵⁰ The 1907 legislation established the federal Bureau of Naturalization, whose purpose was to ensure all applicants

⁴⁴ Charles B. Keely, *U.S. Immigration: A Policy Analysis*, 14.

⁴⁵ DeSipio and de la Garza, *Making Americans, Remaking America*, 37.

⁴⁶ Aristide R. Zolberg, “Reforming the Back Door: The Immigration Reform and Control Act of 1986 in Historical Perspective,” in *Immigration Reconsidered: History, Sociology, and Politics*, ed. Virginia Yans-McLaughlin (New York: Oxford University Press, 1990), 317.

⁴⁷ DeSipio and de la Garza, *Making Americans, Remaking America*, 38.

⁴⁸ U.S. English Foundation, “American Immigration: An Overview,” <http://www.us-english.org/foundation/amimgr/AppendixB.pdf>, accessed January 2004.

⁴⁹ Aristide R. Zolberg, “Reforming the Back Door: The Immigration Reform and Control Act of 1986 in Historical Perspective,” 318.

⁵⁰ DeSipio and de la Garza, *Making Americans, Remaking America*, 38.

met citizenship requirements.⁵¹ The law required each immigrant who sought naturalization to declare an intention to become a citizen. An immigrant could petition for citizenship two-to-seven years after declaring an intent. The law also established a minimum U.S. residency requirement of five years before citizenship could be granted.⁵²

The 1917 legislation instituted an English literacy requirement for all immigrants, and barred the immigration of all Asians,⁵³ with the exception of Filipinos.⁵⁴ To satisfy wartime labor requirements, the law suspended anti-contract labor laws for workers from neighboring countries, and excluded these immigrants from the literacy requirement. A language proficiency stipulation was established primarily to limit immigration from the less-developed countries of Southern and Eastern Europe.⁵⁵

b. Military Service of Noncitizens

In reaction to the growing anti-immigrant sentiment of the 1880s and early 1890s, Congress passed legislation in 1894 requiring peacetime enlistees to read, write, and speak English. An enlistee was also required to be a citizen or to declare his intention to become one. The declaration provision was probably the less prohibitive of these two requirements, as immigrants could easily file declarations with any U.S. district court.⁵⁶

⁵¹ Ibid., 75.

⁵² Eilleen Bolger, "Background History of the United States Naturalization Process," in *Colorado Archives*, <http://www.archives.state.co.us/natinfo.htm>, accessed January 2004.

⁵³ Charles B. Keely, *U.S. Immigration: A Policy Analysis*, 15.

⁵⁴ Ruben G. Rumbaut, "Origins and Destinies: Immigration to the United States Since World War II," *Sociological Forum*, 9, no. 4 (1994): 592.

⁵⁵ Aristide R. Zolberg, "Reforming the Back Door: The Immigration Reform and Control Act of 1986 in Historical Perspective," 318.

⁵⁶ James B. Jacobs, and Leslie Anne Hayes, "Aliens in the U.S. Armed Forces," 189.

Though nondeclarant aliens were restricted from serving during the Spanish-American War,⁵⁷ the need for manpower during World War I led to the repeal of this prohibition against nondeclarants. Only citizens of enemy countries were ineligible for enlistment.⁵⁸ In fact, the Selective Draft Act of 1917 exempted declarant aliens from registering for the draft only if they withdrew their declarations. Those who claimed exemption forfeited the opportunity of future citizenship.⁵⁹ Nondeclarant aliens, and aliens from enemy countries who had been drafted in error, were granted the right to continue their military service if approved by their commanding officers.⁶⁰

In all, immigrants from forty-six different nations comprised more than 18 percent of Army enlistees.⁶¹ This number included over 4,000 Filipinos who enlisted in the Army and another 6,000 who enlisted in the Navy.⁶² In May 1918, Congress passed legislation affording all immigrant military members who had served for at least three years the opportunity to naturalize without proof of residence. In addition, noncitizens who had served during World War I were not required to file a declaration of intention.⁶³ Thus, a precedent was established of allowing unlawful immigrants to achieve citizenship through military service. More than 123,000 military members were naturalized by virtue of their service during World War I.⁶⁴

⁵⁷ 55th Congress, 3d session, House of Representatives, Document No. 2, "Annual Reports of the War Department for the Fiscal Year Ended June 30, 1898," 302.

⁵⁸ James B. Jacobs, and Leslie Anne Hayes, "Aliens in the U.S. Armed Forces," 189.

⁵⁹ Nancy Gentile Ford, *Americans All! Foreign-Born Soldiers in World War I*, 57.

⁶⁰ *Ibid.*, 56.

⁶¹ *Ibid.*, 3.

⁶² Luisito G. Maligat, "Study of the U.S. Navy's Philippines Enlistment Program, 1981-1991," Master's Thesis, Naval Postgraduate School, 2000, 2.

⁶³ Eilleen Bolger, "Background History of the United States Naturalization Process," in *Colorado Archives*, <http://www.archives.state.co.us/natinfo.htm>, accessed January 2004.

⁶⁴ William S. Bernard, ed., *American Immigration Policy – a Reappraisal* (New York: Harper & Brothers, 1950), 148.

3. 1919 - 1964

a. *Immigration and Naturalization Policy*

After World War I, restrictions on immigration were imposed once again. Two forces led the movement for new restrictions: so-called elites, who sought to decrease heterogeneity and reinforce values that were considered to be the strength of American society; and organized labor, which sought to minimize the “unfair competition” of newly-arrived workers, who were more likely to accept harsh working conditions and lower standards of living.⁶⁵ The Quota Act of 1921 established immigration restrictions based on the 1910 census. The Act permitted 3 percent of the foreign-born of each nationality, as enumerated in the census, to immigrate. The restrictions imposed in the Quota Act of 1924 permitted the immigration of a maximum of 2 percent of each nationality, as enumerated in the 1890 census.⁶⁶ Other provisions of the 1924 law gave preference to the reunification of family members over employment needs.⁶⁷ In addition, the law provided for the establishment of the Border Patrol.⁶⁸ Restrictions barring immigration from Asian countries remained intact.

The agriculture industry was able to lobby for an exemption from quantitative restrictions on Western Hemisphere countries.⁶⁹ Qualitative controls on these countries were created, and they included a requirement to demonstrate financial solvency, a literacy requirement, and a prohibition on contract labor. These provisions were not strenuously enforced, however, due to a lack of infrastructure and a continued need for labor in the Southwestern states.⁷⁰

⁶⁵ Aristide R. Zolberg, “Reforming the Back Door: The Immigration Reform and Control Act of 1986 in Historical Perspective,” 318-319.

⁶⁶ Charles B. Keely, *U.S. Immigration: A Policy Analysis*, 12.

⁶⁷ Aristide R. Zolberg, “Reforming the Back Door: The Immigration Reform and Control Act of 1986 in Historical Perspective,” 316.

⁶⁸ U.S. English Foundation, “American Immigration: An Overview,” <http://www.us-english.org/foundation/amimgr/AppendixB.pdf>, accessed January 2004.

⁶⁹ Ruben G. Rumbaut, “Origins and Destinies: Immigration to the United States Since World War II,” 592.

⁷⁰ Aristide R. Zolberg, “Reforming the Back Door: The Immigration Reform and Control Act of 1986 in Historical Perspective,” 318.

In the 1930s, Mexican workers were deported due mainly to the dire economic conditions of the Depression. When economic conditions improved around the start of World War II, the Bracero Program was initiated. This program, introduced in 1942, allowed for the importation of temporary agriculture and railroad workers under government-supervised contracts. The program stopped after World War II ended, when U.S. service members returned to their civilian jobs. It resumed during the Korean War, and continued until 1954, when 1.3 million Mexicans were deported over a two-year period. The program officially ended in 1964.⁷¹

In 1943, a small immigration quota was extended to China, an ally of the U.S. in World War II.⁷² No other major immigration legislation was passed until 1952, when the McCarran-Walter Act⁷³ became law. The bill, which reaffirmed the quota system, was passed over President Truman's veto. He opposed the legislation because he believed it continued to promote racial and ethnic discrimination.⁷⁴ The law allowed for the immigration of individuals of all ancestries, but established quotas based on the 1920 census.⁷⁵ It also eliminated the requirement to file a declaration of intent to attain citizenship.⁷⁶

b. Military Service of Noncitizens

The anti-immigrant sentiment that prevailed after WWI led to a prohibition on nondeclarant alien enlistments.⁷⁷ Even so, there were some who believed a universal military conscription that included noncitizens would provide a means of educating "the great alien and illiterate population which otherwise, under the influence of unscrupulous and disloyal agitators, may become a

⁷¹ Ibid., 319.

⁷² Charles B. Keely, *U.S. Immigration: A Policy Analysis*, 16.

⁷³ This legislation is also known as the Immigration and Naturalization Act (INA) of 1952.

⁷⁴ Charles B. Keely, *U.S. Immigration: A Policy Analysis*, 16-18.

⁷⁵ DeSipio and de la Garza, *Making Americans, Remaking America*, 27.

⁷⁶ Eilleen Bolger, "Background History of the United States Naturalization Process," in *Colorado Archives*, <http://www.archives.state.co.us/natinfo.htm>, accessed January 2004.

⁷⁷ James B. Jacobs, and Leslie Anne Hayes, "Aliens in the U.S. Armed Forces," 189.

national menace.”⁷⁸ A draft of all noncitizens did not occur. Nonetheless, 80,000 military members were naturalized in the intervening years between the two World Wars.⁷⁹ The Nationality Act of 1940 provided for the naturalization of enlistees with honorable service of three years or more, without regard to length of residence in the U.S. or declaration of intention.⁸⁰

The Selective Service and Training Act of 1940 required all male declarant aliens between twenty-one and thirty-six years of age who resided in the United States to register for the draft.⁸¹ Within weeks of the U.S. entering WWII, nondeclarant aliens who were not from enemy nations were included in this registration. As was the case in WWI, those who claimed exemption forfeited the opportunity of future citizenship.⁸²

For enlistment purposes, aliens were classified in one of three categories: 1) cobelligerent; 2) neutral; or 3) enemy or allied with enemy. Individuals in the first two categories were acceptable if they were physically qualified, and if they did not require investigation by the Army. Those in the third category, if otherwise deemed acceptable with respect to security concerns and physical qualifications, were allowed to enlist as long as they signed a statement agreeing to train and serve in the Army. Japanese aliens, however, were expressly prohibited by this regulation from enlisting.⁸³ A total of 30,000 aliens from enemy countries served in the Army during WWII.⁸⁴

⁷⁸ “Annual Report of the Chief of Staff,” 1919, 248, quoted in S. Leon Levy, “The Burdens of Preparedness and War,” *Political Science Quarterly*, 35, no. 2 (1920): 294.

⁷⁹ U.S. Citizenship and Immigration Services, <http://uscis.gov/graphics/aboutus/history/since07.htm>, accessed January 2004.

⁸⁰ James B. Jacobs, and Leslie Anne Hayes, “Aliens in the U.S. Armed Forces,” 194.

⁸¹ Watson B. Miller, “Foreign Born in the United States Army During World War II, With Special Reference to the Alien,” *Interpreter Releases*, XXV, no. 39, ed. Frank L. Auerbach, August 11, 1948.

⁸² James B. Jacobs, and Leslie Anne Hayes, “Aliens in the U.S. Armed Forces,” 193.

⁸³ “Enlisted Men: Reception of Selective Service and Enlisted Men,” Army Regulations 615-500, Section 2, 7e, September 1942.

⁸⁴ Watson B. Miller, “Foreign Born in the United States Army During World War II, With Special Reference to the Alien,” 276.

Over 109,000 noncitizens (roughly 36 percent of foreign-born service members) joined the Army between July 1, 1940 and June 30, 1945.⁸⁵ Canada, Mexico, Germany, Italy, and Great Britain contributed the largest proportions of noncitizen soldiers.⁸⁶ The restrictive immigration policy implemented in the early 1920s seems to have had a noticeable effect on the comparable percentages of older noncitizens and citizens in the military: for example, 64 percent of noncitizen enlistees were older than 35 years of age, compared with only 30 percent of their citizen counterparts.⁸⁷

A large number of immigrants who served during the war were able to attain citizenship. A total of 142,353 enlistees were naturalized between July 1, 1941 and June 30, 1947.⁸⁸ Immediately after the war, however, immigrants were barred from enlisting. In 1948, declarant aliens were again permitted to serve due to mounting Cold War manpower requirements.⁸⁹

In 1950, the Lodge Act was passed, authorizing the enlistment of 2,500 residents of Eastern Europe. The intent of this legislation was to provide the U.S. with a pool of skilled individuals who could assist with the Cold War effort. The law was amended in 1951 to increase the number authorized to 12,500. Enlistees who completed five years of honorable service were eligible for permanent residence in the United States. Of the 1,302 individuals who enlisted under this program, 812 (63 percent) became citizens.⁹⁰

Under a special agreement between the Filipino government and the U.S. Navy, the Philippines Enlistment Program (PEP) was established in 1952 as part of the Republic of the Philippines - United States Military Bases Agreement (RP-US MBA). Between 1952 and 1991, over 35,000 Filipinos enlisted in the U.S. Navy through this intensely competitive program that allowed

⁸⁵ Ibid., 264.

⁸⁶ Ibid., 272.

⁸⁷ Ibid., 265.

⁸⁸ Henry B. Hazard, "Administrative Naturalization Abroad of Members of the Armed Forces of the United States," *The American Journal of International Law*, 46, no. 2 (1952): 270.

⁸⁹ James B. Jacobs, and Leslie Anne Hayes, "Aliens in the U.S. Armed Forces," 190.

⁹⁰ Ibid., 195-96.

Filipino nationals to attain citizenship through U.S. military service.⁹¹ This special relationship between the Philippines and the U.S. Navy stemmed from the U.S. colonization of the Philippine Islands in the early twentieth century.

Section 1440 of Title 8 of the Immigration and Naturalization Act of 1952 expanded citizenship eligibility to include noncitizens who enlisted, reenlisted, or extended enlistments while residing in U.S. territories, or while aboard a public vessel owned or operated by the United States. It also provided for the naturalization of individuals who served during wartime, whether or not they were documented immigrants.⁹² Congress enacted legislation in 1953 that limited citizenship eligibility to only documented immigrants. This provision applied to individuals who served in the armed forces from June 25, 1950 through July 1, 1955. The provision expired in 1955, and in 1961 Congress enacted legislation that authorized the naturalization of undocumented immigrant enlistees who had served during this five-year period.⁹³

The 1961 law also revoked the 1894 prohibition against nondeclarant alien peacetime service, thereby allowing an individual's lawful admission to the United States to serve as the minimum criterion for enlistment.⁹⁴ With passage of this 1961 law, immigration restrictions effectively became the most critical limiting factor on the enlistment of noncitizens in the armed forces.

4. 1965 - PRESENT

a. Immigration and Naturalization Policy

The national origin quota system established in 1921 and amended in 1924 had a marked effect on the number of foreign-born residents in the United States. From 1940 through 1950, the percentage of foreign-born

⁹¹ Luisito G. Maligat, "Study of the U.S. Navy's Philippines Enlistment Program, 1981-1991," v.

⁹² Legal Information Institute, U.S. Code Collection, <http://www4.law.cornell.edu/uscode/8/1440.html>, accessed February 2004.

⁹³ Darlene C. Goring, "In Service to America: Naturalization of Undocumented Alien Veterans," 427.

⁹⁴ James B. Jacobs, and Leslie Anne Hayes, "Aliens in the U.S. Armed Forces," 190.

individuals declined from 9 percent to 6 percent of the total population.⁹⁵ By the mid-1960s, a consensus for changing the nation's immigration policy had emerged.

The Kennedy-Johnson Amendment to the McCarran-Walter Law of 1952, also known as the Immigration and Naturalization Act (INA) of 1965, resulted from the growing pressures of diverse interest groups.⁹⁶ "New" Europeans who had significant political power, and were concerned primarily with family reunification, were able to co-opt labor allies within the Democratic party. These representatives of labor sought to ensure labor immigration would not be significantly increased, and hoped to include Western Hemisphere immigration in the annual allowable total. The two groups were able to lobby together successfully for a complete revision of immigration policy.⁹⁷

The INA of 1965 set ceilings of 170,000 for immigrants from the Eastern Hemisphere, and 120,000 for those from the Western Hemisphere. The latter figure was below the flow of immigrants from the Western Hemisphere at that time. A cap of 20,000 was established for each country in the Eastern Hemisphere, with no corresponding cap for Western Hemispheric nations.⁹⁸ The racial quota system ended, along with policies that limited immigration by Asians.

Unlike the INA of 1952, which allotted relatively equal shares of immigrant positions to family members and workers,⁹⁹ the INA 1965 legislation dedicated 84 percent of the positions to family reunification, with 10 percent for employment and 6 percent for refugees. In addition, all non-family member immigrants "were required to obtain a labor clearance certifying that American workers were not available for their jobs and that the immigrants would not lower

⁹⁵ Ernest Rubin, "United States," 136.

⁹⁶ DeSipio and de la Garza, *Making Americans, Remaking America*, 41.

⁹⁷ Aristide R. Zolberg, "Reforming the Back Door: The Immigration Reform and Control Act of 1986 in Historical Perspective," 320.

⁹⁸ *Ibid.*, 321.

⁹⁹ Charles B. Keely, *U.S. Immigration: A Policy Analysis*, 16.

prevailing wages and working conditions.”¹⁰⁰ With passage of this legislation, nicknamed the “Brothers and Sisters Act,” an immigration policy was institutionalized that gave clear preference to family reunification.¹⁰¹

The INA of 1965 has promoted consistently increasing levels of immigration. The strong emphasis on family reunification has favored individuals who desire to immigrate and have family members who are citizens or permanent residents of the United States. As described below, the most profound effect of the law has been the increase in undocumented immigration that has occurred since this law was passed.¹⁰² Amendments to the original bill have sought to address the issues of undocumented immigration and a strong bias toward family reunification.¹⁰³

In 1976, a revised preference system placed an annual cap of 20,000 on immigrants from each Western Hemispheric nation. This change actually exacerbated the flow of undocumented immigrants from Mexico, as the yearly stream of Mexicans had averaged roughly 60,000 before this change.¹⁰⁴ Two years later, the law was again revised, placing a ceiling of 290,000 on immigration, without regard for hemisphere.¹⁰⁵ In 1979, the worsening economic situation, compounded by the media’s coverage of illegal immigration, led to the

¹⁰⁰ Ibid., 19.

¹⁰¹ Aristide R. Zolberg, “Reforming the Back Door: The Immigration Reform and Control Act of 1986 in Historical Perspective,” 320.

¹⁰² Amendments to the law restricted immigration from individual countries in the Western Hemisphere. “As (the INA of 1965) limits immigration for many who desire access to the United States and simultaneously allows large numbers to immigrate, it creates an incentive to undocumented immigration as well as large legal immigrant communities into which undocumented immigrants can merge and, in many cases, disappear.” DeSipio and de la Garza, *Making Americans, Remaking America*, 49.

¹⁰³ DeSipio and de la Garza, *Making Americans, Remaking America*, 43.

¹⁰⁴ Aristide R. Zolberg, “Reforming the Back Door: The Immigration Reform and Control Act of 1986 in Historical Perspective,” 322.

¹⁰⁵ U.S. English Foundation, “American Immigration: An Overview,” <http://www.us-english.org/foundation/amimgr/AppendixB.pdf>, accessed January 2004.

establishment of the Select Committee on Immigration Reform Policy. The recommendations of this committee ultimately resulted in passage of the Immigration Reform and Control Act (IRCA) of 1986.¹⁰⁶

The 1986 law strengthened the Border Patrol and established employee sanctions for knowingly employing undocumented workers. In practice, however, it was often difficult to prove an employer was aware that a person's immigration documentation had been falsified. A final provision granted amnesty to 2.7 million undocumented workers who had lived in the United States since 1982.¹⁰⁷

In 1990, a flexible annual cap of 675,000 was established.¹⁰⁸ Approximately 70 percent of the positions were allotted for family members, 20 percent for employment visas, and 10 percent for diversity visas.¹⁰⁹⁻¹¹⁰ Since 1997, undocumented workers who are returned to their countries of origin must wait a minimum of three years to receive a visa to travel to the United States.¹¹¹ An estimated 300,000 undocumented immigrants arrive in the U.S. annually, with 45 percent from Latin America, 20 percent from the Caribbean, and 20 percent from Asia. Currently, Mexico is the single-largest source of undocumented immigrants.¹¹²

b. Military Service of Noncitizens

The INA was amended in 1968 to allow for the naturalization of immigrants who served in the armed forces during the Vietnam War.¹¹³ The

¹⁰⁶ Aristide R. Zolberg, "Reforming the Back Door: The Immigration Reform and Control Act of 1986 in Historical Perspective," 322.

¹⁰⁷ DeSipio and de la Garza, *Making Americans, Remaking America*, 45.

¹⁰⁸ U.S. Citizenship and Immigration Services, <http://uscis.gov/graphics/shared/aboutus/statistics/statyrbook96/Chapter1.pdf>, accessed January 2004.

¹⁰⁹ Diversity visas were established to increase the number of immigrants from countries that had not been major source countries for immigration in recent years.

¹¹⁰ DeSipio and de la Garza, *Making Americans, Remaking America*, 47.

¹¹¹ *Ibid.*, 46.

¹¹² *Ibid.*, 53.

¹¹³ U.S. Citizenship and Immigration Services, <http://uscis.gov/graphics/aboutus/history/since07.htm>, accessed January 2004.

amended legislation also provided for the naturalization of noncitizen enlistees who might serve during any period of military hostilities to be defined by future Executive Orders.¹¹⁴ In 1978, Executive Order 12081 allowed for the naturalization of noncitizens who served during the Vietnam Conflict, as defined by the time period February 28, 1961 through October 15, 1978.¹¹⁵ Executive Order 12939 was issued in 1994 to permit the naturalization of Gulf War veterans who served any time between August 2, 1990 and April 11, 1991.¹¹⁶

Operation Enduring Freedom began in the fall of 2001. The provisions of Executive Order 13269, signed in July 2002, apply for as long a period as the operation continues.¹¹⁷ In keeping with the provisions of this Executive Order, Congress enacted legislation in November 2003 that provides for expedited citizenship of noncitizen military members. Service time is reduced from three years to one year, with no permanent residency time requirement. In addition, immigrant service members may receive expedited posthumous citizenship.¹¹⁸ The time required for naturalization processing of service members may be as little as three months.¹¹⁹

From 1988 through 2001, noncitizens have comprised approximately 3.5 percent of the enlisted force in the U.S. military.¹²⁰ In major urban areas, such as New York and Los Angeles, a large number of potential enlistees are noncitizens. In 2003, Army officials estimated that approximately two-thirds of potential recruits who inquire about enlistment at the Flushing, New

¹¹⁴ Legal Information Institute, U.S. Code Collection, <http://www4.law.cornell.edu/uscode/8/1440.html>, accessed February 2004.

¹¹⁵ Darlene C. Goring, "In Service to America: Naturalization of Undocumented Alien Veterans," 429.

¹¹⁶ *Ibid.*, 430.

¹¹⁷ United States Bureau of Citizenship and Immigration Services, <http://www.bcis.gov/graphics/lawsregs/handbook/ExecOrd13269.pdf>, accessed September 2003.

¹¹⁸ United States Congress, <http://thomas.loc.gov/bss/d108/d108laws.html>, accessed February 2004.

¹¹⁹ Tina Susman, "A Citizenship Struggle: Deployed Troops Often Miss Alerts, Deadlines in Their Quest," *Long Island Newsday*, January 30, 2004.

¹²⁰ Cara Wong, "Citizenship for Service: Substitution, Commutation, and "Green Card Troops," 16.

York recruiting office hail from other countries.¹²¹ In New York City, in 2001, the Department of Defense estimated the percentages of immigrant recruits enlisted in the Army, Navy, and Marine Corps were 27 percent, 40 percent, and 36 percent, respectively.¹²² At present, the only de facto ceiling on noncitizen first-term enlistments is the requirement to hold a security clearance in certain military occupations. No federal legislation or service-specific policy presently limits the number of noncitizen first-term enlistments. The Army and Air Force do, however, limit noncitizen service to a maximum of eight years.¹²³

Although the enlistment of illegal immigrants is expressly prohibited, undocumented immigrants have served in the U.S. military throughout the nation's history. In fact, the standards for Selective Service registration, as set forth in the 1971 Selective Service Act, do not actually stipulate legal entry into the United States. Individuals required to register include all aliens between the ages of eighteen and thirty-five years, regardless of the legal status of their immigration.¹²⁴

The only noncitizen recruits for whom additional security checks are automatically implemented are those whose home country is deemed hostile to the United States.¹²⁵ Stories of undocumented immigrants who have enlisted and been granted amnesty for their military service are not uncommon.¹²⁶ In

¹²¹ Juan Gonzalez, "Army Slogans – And G.I. Reality," *New York Daily News*, September 23, 2003.

¹²² David Chen, and Somini Sengupta, "A Nation Challenged: The Recruits; Not Yet Citizens but Eager to Fight for the U.S.," *New York Times*, October 26, 2001.

¹²³ Tina Susman, "A Citizenship Struggle: Deployed Troops Often Miss Alerts, Deadlines in Their Quest," *Long Island Newsday*, January 30, 2004; and Mark Krikorian, "Green-Card Soldiers: Should the U.S. Military be Reserved for Americans?," http://www.nationalreview.com/nr_comment/nr_comment042203.asp, accessed February 2004.

¹²⁴ "Recent Amendments to Selective Service Regulations Affecting Aliens," *Interpreter Releases*, October 16, 1972.

¹²⁵ David Chen, and Somini Sengupta, "A Nation Challenged: The Recruits; Not Yet Citizens but Eager to Fight for the U.S.," *New York Times*, October 26, 2001.

¹²⁶ Darlene C. Goring, "In Service to America: Naturalization of Undocumented Alien Veterans," 401.

response to the acknowledged service of numerous undocumented immigrants, the Department of Defense announced a plan to “prescreen” noncitizen recruits starting in the spring of 2004.¹²⁷

According to some legal experts, Executive Order 13269 of July 2002 does not preclude undocumented immigrant enlistees from obtaining citizenship for their service.¹²⁸ At least one undocumented Army enlistee who served in Operation Iraqi Freedom, Private Juan Escalante, has received considerable media attention. In February 2004, Private Escalante achieved a long-standing dream when he raised his hand and promised to defend his country, the United States – as he recited the citizenship oath.¹²⁹

¹²⁷ Bruce Finley, “Military Eyeing ‘Unknowns’: Thousands in Ranks May Not Be Citizens,” *Denver Post*, February 24, 2004.

¹²⁸ Florangela Davila, “Army Says Illegal-Immigrant Soldier Can Stay,” *Seattle Times*, September 12, 2003; and Donatella Lorch, “A Matter of Loyalty: He Joined the Army with a Fake Green Card. Now What?” *Newsweek*, November 3, 2003.

¹²⁹ Florangela Davila, “Army Private Receives New Rank: U.S. Citizen,” *Seattle Times*, February 12, 2004.

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III. INTERVIEWS WITH NONCITIZEN ENLISTEES

To gain a deeper understanding of the individuals who currently serve as noncitizen enlistees, one may explore their histories and motivations in the context of a broader canvas. Many of these personal histories are tied directly to U.S. policy. The combination of personal and global perspectives paints a more expansive picture of the U.S. military and the nation.

A. PROFILE OF INTERVIEWEES

Ten enlistees from the Army, Navy, and Air Force were interviewed to gain a better understanding of their perspectives and motivations. All ten of the enlistees joined the military as noncitizens; five had attained citizenship since the year 2000. One of the interviewees was in the Army's Delayed Entry Program (DEP) waiting to start active duty at the time of the interview. All others were on active duty; nine of the ten were men. Table 1 provides information on their national origin and service affiliation.

Table 1. National Origin of Interviewees, by Service

	Army	Navy	Air Force
Philippine Islands		2	2*
Mexico	2		
Cambodia		1	
Ghana		1	
Nigeria		1	
Iran			1

* One of the two interviewees is a woman.

B. RELATIONSHIP TO FORCE COMPOSITION

Although this sample is small and not randomly selected, the interviewees are from geographic areas that are well-represented in the U.S. military. More than 37,000 noncitizen enlistees from over 200 different countries were

estimated to be serving on active-duty in February 2003.¹³⁰ Appendix A provides a list of source countries and the number of enlistees serving from each. The first- and second-largest source countries for noncitizen recruits are the Philippines and Mexico. In February 2003, non-naturalized Filipinos and Mexicans comprised 15 percent and 11 percent, respectively, of all noncitizen enlistees in the armed forces.¹³¹ The total number of noncitizens serving on active duty as of September 2003 was 32,918.¹³²

The combination of post-1965 immigration and naturalization policy, economics, and political-cultural linkages explains the large percentages of Asian and Latin American immigrants who arrive in the U.S. annually. Mexico and, until recent years, the Philippines,¹³³ have dominated the immigrant flow from their respective regions. The family, social, and economic networks formed by these immigrant communities serve to perpetuate “chain migration”: the tendency for immigrants to follow in the footsteps of those who have gone before them.¹³⁴

The large number of Filipinos who move to the U.S. each year, and the large number that choose to enlist, are directly related to the history of relations between the United States and the Philippines. Strong military, political, and cultural linkages developed between the two countries after the Philippine Islands became a U.S. territory at the end of the Spanish-American War. Since 1970, 5 percent of all legal immigrants have been Filipino, making the Philippines the second-largest source country of immigrants for the years 1970-1998.¹³⁵

¹³⁰ Defense Manpower Data Center, Monterey, California: “Non-U.S. Citizens on Active Duty as of February 2003.”

¹³¹ Ibid.

¹³² Defense Manpower Data Center, Monterey, California: “Citizenship Status as of September 2003.”

¹³³ Since 1998 immigration from China and India has rivaled, and in some years surpassed, immigration from the Philippines.

¹³⁴ Robert W. Gardner and Leon F. Bouvier, “The United States,” 351.

¹³⁵ U.S. Citizenship and Immigration Services, <http://uscis.gov/graphics/shared/aboutus/statistics/IMM02yrbk/IMM2002.pdf>, accessed January 2004.

Mexico's ties to the United States are also deeply-rooted. Mexico has historically provided the U.S. with low-cost labor, while the U.S. has offered Mexicans broader economic opportunity. Mexicans now account for 20 percent of legal immigrants each year,¹³⁶ and the majority of undocumented immigrants. Geographic proximity and economics inextricably link the two countries.

The composition of the noncitizen component of the active-duty force is a direct result of the dynamic between policy, economics, and social forces. Hence, the Philippines and Mexico represent the two largest immigrant enlistee groups. In the case of the Philippines, the strong American presence in the country throughout most of the twentieth century directly led to increased numbers of Filipinos with English-language proficiency. The Philippine Enlisted Program (PEP), discussed in Chapter II, furthered the already strong ties between the two countries, and led to steady streams of Filipino immigrants into the U.S. Navy throughout the latter half of the twentieth century. Though PEP was discontinued after 1992, Filipinos continue to comprise the largest proportion of noncitizen first-term enlistees from any one country in the Navy.¹³⁷ They are also the largest group of noncitizen first-term enlistees in the Air Force.¹³⁸

C. SUMMARY OF MAJOR TOPICS ADDRESSED IN INTERVIEWS

Five general topics were discussed in each of the interviews: the reason why the enlistee and/or the enlistee's family chose to immigrate; whether immigration was a family or individual decision; the level of formal education completed by the enlistee; the motivations for enlistment; and the individual's plans for the future. What follows is a summary of the responses of the interviewees, linkages between these responses and certain principles of immigration theory, and, where appropriate, implications for the recruiting and retention of enlistees who join the military as noncitizens.

¹³⁶ Ibid.

¹³⁷ Defense Manpower Data Center, Monterey, California: Descriptive Statistics of Fiscal Year 1990-1998 Enlistee Cohorts, provided September 2003.

¹³⁸ Ibid.

D. MOTIVATIONS FOR IMMIGRATION

People choose to immigrate for a variety of reasons. In the broadest sense, immigration is a way to achieve material improvement.¹³⁹ In addition to the economic reasons for immigration, various other factors operate to “push” and “pull” persons, as they leave one country for another. Contemporary theories view the immigration phenomenon from several perspectives, including economic, social, and political.

Utility maximization, or the desire to achieve the maximum level of satisfaction possible given one’s limited resources,¹⁴⁰ is an important motivation for many immigrants, and a concept that spans various disciplines of immigration theory. Satisfaction encompasses both economic and non-monetary aspects of life. Present and future costs and benefits, both psychological and monetary, are considered before making the decision to immigrate.

The possibility for greater opportunity was the most commonly stated motivation for immigration voiced by the ten enlistees who participated in the interviews. For nine of the ten individuals, the possibility of greater economic and/or educational opportunity was *the* most important reason mentioned. The one interviewee for whom it was not the overriding factor came to the United States as a political refugee.

When asked about his parents’ decision to move with their two sons to the U.S., one of the eight enlistees who immigrated with his family stated, “They...sacrificed their lives for us.” His parents had retired and could have lived comfortably in their homeland, but believed moving to the United States would substantially benefit their children. Another interviewee referred to his parents’ decision to immigrate based on the chance for a better future for him and his siblings. And one of the two enlistees who immigrated as an adult mentioned the desire to improve the lives of his children as a motivating factor for immigration.

¹³⁹ Douglas S. Massey and others, *Worlds in Motion* (New York: Oxford University Press, 1998), 1.

¹⁴⁰ Ronald G. Ehrenberg and Robert S. Smith, *Modern Labor Economics: Theory and Public Policy*, 8th ed., (Boston: Pearson Addison Wesley, 2003), 3.

E. FAMILY DECISION

Most of the interviewees believed the choice to immigrate was a family decision. Eight of the ten enlistees said they and/or their parents and other family members (both within the U.S. and within their native countries) jointly decided to move to the United States. All eight of these individuals arrived in this country before they were financially independent, that is, while they were either legal minors or still students. The only two individuals for whom the decision was not part of a family process moved to the U.S. when they were unmarried adults.

Immigration based on a family decision is consistent with U.S. immigration policy, in that more than 70 percent of visas are granted to family members.¹⁴¹ In this small sample, six of the ten interviewees received family sponsorship visas. Two others were the recipients of diversity visas, and two were undocumented immigrants. The concept of a family-based decision is also consistent with the desire to minimize the costs and risks associated with immigration. Families that share the economic costs and returns of moving to another country are often better able to maximize income, particularly in countries where labor, credit, and capital markets are faulty. Part of this cost/reward sharing often involves sending monetary support, or remittances, to relatives in their homeland.¹⁴² Of the ten enlistees, eight said that they or their parents send remittances to family members in their native countries.

A concept related to the idea of immigration as a family decision is that of immigrant networks that develop and become institutionalized in societies. Networks serve to lower the costs associated with moving to a new country.

¹⁴¹ DeSipio and de la Garza, *Making Americans, Remaking America*, 47.

¹⁴² Oded Stark and David E. Bloom, "The New Economics of Labor Migration," *The American Economic Review* 75, no. 2 (1985): 174.

They are self-perpetuating, since the increased social capital¹⁴³ associated with additional members of a community migrating to the same region tends to encourage more movement, or what is called chain migration.¹⁴⁴

Of the ten individuals interviewed, eight moved to states with significant immigrant populations. They and/or their families arrived and initially settled in areas with historically large proportions of immigrants from their countries or regions of the world. The two individuals from Africa moved to New Jersey; one enlistee from Mexico moved to Arizona, and the other to California; the recruit from Iran settled in California; and three of the four Filipinos moved to communities in California. The two enlistees who did not settle in states with high concentrations of immigrants from their countries are the individual from Cambodia, whose family came to the U.S. as political refugees and settled in San Antonio, and the Filipina enlistee, whose family settled in Alaska, where her aunt, the family's sponsor, was stationed in the U.S. Air Force.

F. LEVEL OF EDUCATION

Education is a topic of interest in this study because of the dynamics associated with education and immigration. Higher levels of education are generally equated with increased employment opportunities. At the same time, evidence suggests that greater benefit is gained from education acquired after immigration to the U.S. than before an individual leaves his or her homeland.¹⁴⁵

The impressions gathered in these interviews correspond with this finding. Of the five enlistees who acquired all their education in their native countries, three obtained associate's degrees, one attended some college, and one obtained a high school diploma prior to arriving in the U.S. Of the five who

¹⁴³ "Social capital is the sum of the resources...that accrue to an individual or a group by virtue of possessing a durable network of more or less institutionalized relationships of mutual acquaintance and recognition." Pierre Bourdieu and Loic Wacquant, *An Invitation to Reflexive Sociology*, 3rd ed. (Chicago: University of Chicago Press, 1992), 119, quoted in Douglas S. Massey and others, *Worlds in Motion* (New York: Oxford University Press, 1998), 42.

¹⁴⁴ Douglas S. Massey, "The Social and Economic Origins of Immigration," *Annals of the American Academy of Political and Social Sciences* 510 (1990): 60.

¹⁴⁵ Julian R. Betts and Magnus Lofstrom, "The Educational Attainment of Immigrants," in *Issues in the Economics of Immigration*, ed. George J. Borjas, (Chicago: The University of Chicago Press, 2000), 109.

acquired their highest level of education in the United States, none achieved a degree beyond a high school diploma before joining the military, and only one of the five completed some amount of college before enlisting. Thus, the recruits with associate's degrees, who might have pursued non-military employment or furthered their education if they had achieved their degree in the United States, elected to enlist in the military to gain job experience and earn money for advanced education.

Another finding associated with immigration and education is that the "sheepskin effect"¹⁴⁶ of a high school diploma is weaker for immigrants than for their citizen counterparts. In other words, evidence suggests that many employers place very little, if any, economic value on high school completion if it occurred in a foreign country.¹⁴⁷ Since none of the enlistees who immigrated after completing high school had obtained a four-year college degree before they arrived in the U.S., the implicit "devaluation" of their education in the eyes of employers may have been one motivating factor to enlist.

G. MOTIVATIONS FOR ENLISTMENT

Along with education, job training and experience were the most important reasons cited by enlistees for joining the military. Three of the ten enlistees mentioned job stability as the top priority, while another three said job training was the overriding consideration for enlistment. One individual valued most the educational opportunities offered by the military. Two others enlisted for adventure, and one of these two individuals highly valued educational benefits. The Filipina enlistee joined to follow in the footsteps of her grandfather, who had served in the Marine Corps, and her aunt, who was still on active duty in the Air Force.

¹⁴⁶ "Sheepskin effect" refers to an upward bias in returns to education, i.e. expected wages for an individual with a high school diploma are higher than for a non-diploma graduate, or for an individual with no high school diploma.

¹⁴⁷ Julian R. Betts and Magnus Lofstrom, "The Educational Attainment of Immigrants: Trends and Implications," 109.

The four Filipino enlistees had either friends or relatives who had been members of one branch or another of the U.S. armed forces. This observation reflects the existence of a well-established network of active-duty and retired service members of Filipino ethnicity. The other six enlistees did not know anyone in the military prior to starting the enlistment process.

Each of the three enlistees who placed the greatest value on job training knew nothing about the military before answering a newspaper advertisement that referenced training opportunities. Upon answering the ad, each spoke with a military recruiter. Ironically, two of these three individuals inquired about specific types of training, but were ineligible due to security clearance requirements for the jobs associated with the particular training. In all, six enlistees were unable to obtain the military occupation of their choice due to security clearance constraints.¹⁴⁸ Two of the five interviewees who have yet to attain citizenship said they do not intend to reenlist, or pursue a commissioning program in one case, unless they become citizens and are able to change career fields.

Only two of the enlistees said they considered expedited citizenship to be a motivation for enlistment. Of the two who acknowledged expedited naturalization as a motivation, one is enlisted in the Army Delayed Entry Program. Prior to the interview, he was unaware of the November 2003 legislation that decreased the service requirement for naturalization eligibility from three years to one year.¹⁴⁹

Though none of the interviewees mentioned a desire for assimilation as a motivation to serve, this phenomenon is well-documented in sociology literature.¹⁵⁰ It is quite possible that noncitizen enlistees are either reluctant to discuss this issue, or are unaware of their intrinsic motivation to assimilate into

¹⁴⁸ Occupational fields that include areas such as intelligence, information technology, nuclear engineering, and aircraft maintenance all require security clearances. Noncitizens may not serve in these fields. Occupational specialties that include areas such as supply/logistics, construction, and health care do not require security clearances and *are* available to noncitizens.

¹⁴⁹ See Appendix B for a comparison of the naturalization timeline for military enlistee and civilian immigrants.

¹⁵⁰ David W. Chen and Somini Sengupta, "A Nation Challenged: The Recruits; Not Yet Citizens but Eager to Fight for the U.S.," *New York Times*, October 26, 2001.

society in their new homeland. In either case, military service does offer an enlistee the opportunity to acquire a certain social status for oneself and his or her family. Similarly, an enlistee's relatives may be supportive of the service member as a means to facilitate the assimilation of the entire family. And, veteran status offers social and economic advantages to former military members and their immediate relatives.

H. FUTURE PLANS

All enlistees were asked whether they intend to continue serving in the military. Four of the ten plan to reenlist, or have already reenlisted. One interviewee intended to separate to pursue opportunities in the civilian sector. Five were unsure whether they would continue serving. Of these individuals, two said they would base their decision in part on whether they attain citizenship. One enlistee was only interested in continuing his service if he could attain an officer's commission and become a pilot. Since pilot positions require high-level security clearances, this recruit may only attain his goal by becoming a citizen.

For the four individuals who were unsure about reenlistment, both personal and family considerations were important factors in their decision. The process by which they would determine if reenlistment was the best alternative appears very similar to the decision-making process used by most citizens who wrestle with the option to reenlist.

Most of the enlistees said they wanted to pursue more formal education whether or not they continued serving. Only two individuals, one of whom was the Army recruit currently in the Delayed Entry Program, expressed no desire to further their education. One interviewee was unsure of his education plans, and the remaining seven are fairly certain they will pursue a bachelor's degree or higher.

When asked if they would join the military again, four answered "yes" without qualifiers. The Army recruit in the Delayed Entry Program is included in this category. One individual would have pursued his education instead of enlisting. The remaining five enlistees said they would join again, but included

caveats in their responses. Two would have waited until they had attained citizenship to pursue an officer's commission. One would have waited for citizenship to pursue a career field that is closed to noncitizens. Another would have requested a different field open to noncitizen enlistees, and two would enlist again, but in a different branch of the service.

Almost all the interviewees would recommend the military to a friend or family member. Only one would not. Instead, he would recommend that the individual pursue university-level education. Five enlistees, including the Army recruit enrolled in the Delayed Entry Program, would recommend enlistment without any qualifiers. One would direct the relative or friend to specific ratings or job specialties. Three said that the recommendation would hinge on the person and his or her specific situation.

I. SUMMARY OF IMPRESSIONS

All the enlistees who shared their thoughts felt that their military service had been a worthwhile endeavor. Though their opportunities may have been somewhat restricted, they all claimed that their training and experiences were meaningful. They felt they had learned important lessons about themselves, the military, and the United States. Perhaps the statement of one enlistee about his experience best expresses the overall impression of the group: "It showed me a broader America."

As a complement to the qualitative portion of this study, the performance of noncitizen enlistees is examined objectively in this thesis. Statistical analyses of three specific measures of success were performed on enlisted cohort data files for Fiscal Years 1990-1998.¹⁵¹ The detailed results of this quantitative analysis are presented in the following chapter.

¹⁵¹ Data were provided by Defense Manpower Data Center, Monterey, California. Fiscal Years 1990-1998 enlistee cohort data were used in the analysis of estimated first-term attrition and retention beyond the first term. Fiscal Years 1996-1998 enlistee cohort data were used in the analysis of predicted promotion to E-4.

IV. ANALYSIS OF SUCCESS OF NONCITIZEN ENLISTEES

Three measures of success traditionally analyzed in military manpower literature are first-term attrition, retention beyond the first term, and promotion to E-4. All three measures of success are analyzed in this thesis to examine objectively the performance of noncitizen enlistees. Numerous studies have addressed the issues of attrition, retention, and promotion in the armed forces. This chapter provides a selective overview of the approaches presented in these studies that are used to specify the models in this thesis.

A discussion of the data and variables follows the literature review. Descriptive statistics are also presented for the data set. Model specification and the results of the logit regression analyses are then discussed.

A. LITERATURE REVIEW: ATTRITION, RETENTION, AND PROMOTION MODELS

Attrition before the end of an enlistee's first term is costly to the armed forces. To analyze the factors that contribute to attrition, military manpower models include demographic and economic data to predict the success of first-term enlistees. Similarly, retention, and promotion outcomes offer a gauge by which the armed forces may measure the success of its recruiting and assignment policies. Thus, attrition, retention, and promotion outcomes may be considered indicators of the successful performance of entering enlistees.

1. Attrition

a. *Study by Quester and Kimble*¹⁵²

In their 2001 study entitled "Final Report: Street-to-Fleet Study, Volume I: Street-to-Fleet for the Enlisted Force," Quester and Kimble analyze Marine Corps recruiting data between 1979 and 1999. Both Marine Corps Recruiting Depot (MCRD) attrition and first-term attrition are used as measures of

¹⁵² Aline Quester, and Theresa H. Kimble, "Final Report: Street-to-Fleet Study, Volume I: Street-to-Fleet for the Enlisted Force," Center for Naval Analyses (CNA), 2001.

recruit attrition. Level of education, time spent in the Delayed Entry Program (DEP),¹⁵³ race, and Armed Forces Qualification Test (AFQT) score are found to be significant characteristics that affect MCRD attrition.

First-term attrition for contracts of at least four years is defined as attrition that occurs within the first forty-five months of service. The authors also state that in the 1990s, the majority of first-term contracts (80-85 percent) were four years in length. The results of the study demonstrate that accession through DEP is associated with lower first-term attrition. In addition, high-school diploma graduate (HSDG), Hispanic or Black ethnic background, and high AFQT scores are predictive of lower first-term attrition rates.

b. Study by Buttrey and Larson¹⁵⁴

The Office of the Deputy Chief of Staff, Personnel (ODCSPER) commissioned a study to develop a new system to estimate future manning needs of the Army. The military strength management system that had previously been used for over twenty years had become obsolete and inefficient. ODCSPER opted to endorse a new design, equipped with the latest technologies, to overcome the problems of the old system. Much of the structure of the previous system, especially the Enlisted Loss Inventory Model (ELIM), which predicted first-term attrition and retention of enlisted personnel, was retained in the new system:

This current ELIM model bases its projections on characteristic groups (c-groups), whose structure has remained unchanged since the strength management system was initially implemented. These c-groups partition first-term enlisted personnel according to sex, education level, mental category (AFQT group) and term of service in a specific way. They were originally designed, in part, to identify differences in first-term retention behavior, which in turn was expected to increase accuracy in short- and long-term forecasting accuracy.¹⁵⁵

¹⁵³ Individuals who participate in the Delayed Entry Program wait some period of time (up to one year) before reporting to boot camp.

¹⁵⁴ Samuel E. Buttrey, and Harold J. Larson, "Determining Characteristic Groups to Predict Army Attrition," Naval Postgraduate School, Monterey, California, 1999.

¹⁵⁵ *Ibid*, 1.

In recent years the accuracy of the projections done by the ELIM model has not been satisfactory. Buttrey and Larson developed a Classification and Regression Tree methodology (CART) to generate new c-groups for the use of ODCSPER's new military strength management system. The variables used in building classification trees are: AFQT score, race, sex, length of term, age, time spent in DEP, career management field (CMF), and education level. The results of the study suggest that contract completion rates among men (53.8 percent) are considerably higher than the rates for women (36.3 percent). Furthermore, higher education, higher AFQT score and certain CMFs (armor, infantry and service support) are associated with higher contract completion rates. The authors also determine that non-Caucasians have lower attrition, higher term completion, and higher reenlistment rates than Caucasians.

c. Study by Hattiangadi, Lee and Quester¹⁵⁶

This report by CAN focuses on the performance of Hispanic recruits in the Marine Corps. Success of recruits is measured by two indicators: completion of entry-level training (boot camp), and completion of the first term of service. Boot-camp attrition rates are analyzed for the period 1970-2001. Tabulations show that the average boot-camp attrition rate is lower for Hispanic men, as compared with non-Hispanics. The logit regression method is then used to estimate predicted attrition probabilities. The authors include AFQT categories, meeting weight and height standards, DEP participation, summer accessions, enlistment waiver, college fund recipient, enlistment bonus recipient, noncitizen status, race/ethnic background, and fiscal year dummy variables to estimate boot camp and first-term attrition probabilities.

The results indicate that Hispanic men have lower predicted boot-camp attrition rates than do non-Hispanic men, all else equal. The difference varies between 5.1 percentage points and 2.8 percentage points, depending on the specific ethnic background of recruits (e.g., Mexican, Puerto Rican, etc.).

¹⁵⁶ Anita U. Hattiangadi, Gary Lee and Aline O. Quester, "Recruiting Hispanics: The Marine Corps Experience Final Report," Center for Naval Analyses, January 2004.

The effect of Hispanic ethnicity is found to be even larger for first-term attrition. According to the report, the estimated first-term attrition rate is 11 percentage points lower for Hispanic men, as compared with non-Hispanic men.

Another significant finding of the study that relates directly to this thesis is the statistical significance of the noncitizen variable in both attrition models. The predicted first-term attrition rate for male noncitizens is 8.2 percentage points lower than the estimated rate for male citizens.

2. Retention

a. Annualized Cost of Leaving (ACOL) Model

The ACOL model was first introduced in 1984 by Enns, Nelson and Warner.¹⁵⁷ Since its development, this model has been one of the most commonly used frameworks for analyzing enlisted retention behavior.

The stay-or-leave decision is assumed to entail a comparison between the individual's current military occupation and potential alternative civilian occupation, with consideration given to both pecuniary and non-pecuniary attributes of each alternative. Economic theory suggests a rational individual would choose the alternative that yields the greatest satisfaction or utility. The ACOL model involves a comparison between the discounted value of expected military and civilian compensation streams.

The military pay stream for enlisted personnel includes Regular Military Compensation (RMC), Selective Reenlistment Bonuses (SRBs), and retirement pay. All these compensations have different time horizons. For example, an increase in RMC would be effective throughout the individual's military career, but retirement benefits can only be attained after the successful completion of twenty years of service. The ACOL approach addresses this problem by combining all the elements of compensation into a single measure.¹⁵⁸ The annualized cost of leaving is the difference between the present value of both the military and civilian earnings over a given future time horizon:

¹⁵⁷ Matthew S. Goldberg, "A Survey of Enlisted Retention: Models and Findings," Center for Naval Analyses, November 2001, 6.

¹⁵⁸ *Ibid*, 8.

The major contributions of the model (are) that it provide(s) a rational basis for determining the horizon over which military and civilian pay are compared, and it relate(s) the estimated retention equation more directly to individual utility maximizing decisions.¹⁵⁹

The ACOL variable is the difference between the discounted value of future benefits from staying ($S_{t,n}$) and the value of leaving immediately (L_t): ($S_{t,n} - L_t$). A positive value of ACOL suggests the individual will stay in the military. The present value of the pay stream from staying may be written as:

$$S_{t,n} = \sum \frac{W_j^M}{(1+\rho)^{j-t}} + \frac{R_n}{(1+\rho)^{n-t}} + \sum_{j=t+1}^n \frac{\tau^m}{(1+\rho)^{j-t}} + \sum_{j=n+1}^{\infty} \frac{W_{j,n}^C + \tau^c}{(1+\rho)^{j-t}}$$

and the present value of the pay stream from leaving immediately may be written as:

$$L_t = \sum_{j=n+1}^{\infty} \frac{W_{j,t}^C}{(1+\rho)^{j-t}} + R_t$$

where,

- W_j^M expected military pay in each future year j
- $W_{j,t}^C$ civilian earnings in future year j if the individual leaves at year t
- $W_{j,n}^C$ civilian earnings in future year j if the individual separates after future year n
- R_n expected present value at future year n of retired pay and other separation benefits if the individual separates after year n
- R_t present value at year t of retired pay and other separation benefits if the person leaves now
- τ^m taste factor for military lifestyle

¹⁵⁹ Paul F. Hogan and Matthew Black, "Reenlistment Models: A Methodological Review," U.S. Army Research Institute for the Behavioral and Social Science, February 1991, 24.

- τ^c taste factor for civilian lifestyle
- ρ individual's subjective discount rate on future income
- $S_{t,n}$ present value of the future benefits from staying from period t to period n
- L_t present value of leaving immediately

b. Study by Warner and Goldberg¹⁶⁰

In their 1984 study, "The Influence of Non-Pecuniary Factors on Labor Supply: The Case of Navy Enlisted Personnel," Warner and Goldberg analyze the effects of non-pecuniary factors, such as the frequency of expected sea duty, on the actual reenlistment rates of Navy enlisted personnel. Most of the research prior to this study examines the effect of wage differentials on the elasticity of labor supply, but does not include the effect of other non-monetary factors. The focus of Warner and Goldberg's study is the effect of Navy sea duty on the elasticity of the Navy enlisted personnel reenlistment supply. The initial hypothesis of the authors is that a higher incidence of sea duty causes the reenlistment supply curve to move to the left and become more elastic, resulting in a decreased number of enlisted personnel at any given wage.

Warner and Goldberg create an ACOL variable to examine the effect of monetary factors. To simulate the effect of sea duty, Navy enlisted ratings are classified into 16 occupational areas on the basis of similarity of training, job requirement, and working conditions. Fiscal-year dummy variables are also included in the model.

The results of the study suggest there is a negative correlation (-0.49) between the coefficient of the ACOL variable and the percentage of careerists in sea duty. The coefficient for the ACOL variable is positive and highly significant, and explains much of the variation in the probability of reenlisting. This correlation supports the hypothesis that reenlistment supply curves are less elastic in occupations characterized with a high incidence of sea duty. Warner

¹⁶⁰ John T. Warner and Matthew S. Goldberg, "The Influence of Non-Pecuniary Factors on Labor Supply: The Case of Navy Enlisted Personnel," *The Review of Economics and Statistics* 66, no. 1, February 1984, 26-35.

and Goldberg also determine that married individuals have higher reenlistment rates. According to the authors, this finding may reflect a higher value placed on non-pecuniary aspects by married individuals.

c. Study by Quester and Adedeji¹⁶¹

In their 1991 study, “Reenlisting in the Marine Corps: The Impact of Bonuses, Grade and Dependency Status,” Quester and Adedeji study the effects of enlisted Marines’ background traits on the reenlistment decision. The authors suggest the Marine Corps is enlisting smarter and better-educated marines now than in the past. The recruiting records between 1979 and 1990 are supportive of this conclusion, as they indicate an increase in the ratio of “quality recruits” (AFQTI-III A and HSDG). Other major changes over the ten-year period are the increased rate of marriage by Marines, and the increased number of Marines who have one or more dependents. The main focus of this paper is the effect of reenlistment bonuses, pay grade and dependency status on the reenlistment of first-term enlisted personnel.

Logistic regression analysis is used to estimate the reenlistment decision of first-term Marines. Control variables are Selective Reenlistment Bonus (SRB) level, pay grade, background characteristics (marital status, gender, race, education, and AFQT score), the length of initial contract, the Military Occupational Specialty (MOS) group, the index of military-to-civilian pay (pay index), and the civilian unemployment rate. In certain model specifications, fiscal-year control variables are used as proxies for pay index and unemployment-rate variables. An interaction variable between SRB and AFQT is constructed to control for any additional impact that SRBs might have on the retention of Marines in the top two AFQT categories.

The results suggest that higher SRBs, higher pay grade, higher pay indices, and longer initial enlistments are associated with higher reenlistment rates for first-term Marines. A 1-percent increase in the pay index is associated with a 2.1-percent increase in the reenlistment rate. Furthermore, women,

¹⁶¹ Aline O. Quester and Adebayo M. Adedeji, “Reenlisting in the Marine Corps: The Impact of Bonuses, Grade, and Dependency Status,” Center for Naval Analyses, July 1991.

Blacks, and married Marines have higher probabilities of reenlistment than the base group, which includes men, Caucasians, and single enlistees. Marines in the top two AFQT categories are less likely to reenlist. However, SRBs have a positive effect on the reenlistment rates of Marines in these two test-score categories.

d. Study by North¹⁶²

In his 1994 research paper, "A Cost-Effective Use of Selective Reenlistment Bonuses and Lateral Occupational Moves," North studies the effects of SRBs and lateral movements on the probability of reenlistment of marines. The analysis is restricted to personnel who made the reenlistment decision in the first seventy-two months of service. Marines who are not eligible for reenlistment are not included in the data set.

The author attempts to explain the probability of reenlistment in the first seventy-two months of service using a model that includes: current SRB multiple, initial contract length, civilian unemployment rate, military-to-civilian pay ratio, and occupational fields. In the literature review, the author recognizes the importance of personal background characteristics such as marital status, gender, race, AFQT and education. However, he does not include these variables in the model:

Because planners want to project behavior in the fiscal year before the actual reenlistment decision, (they) want to restrict (the) factors to the variables that will not have considerable change during the year from planning to implementation.¹⁶³

The results of the study suggest that higher reenlistment probabilities are associated with: higher bonus levels, a six-year first-term contract length, a higher civilian unemployment rate, and a higher military-to-civilian pay ratio. Nearly all occupational field variables are statistically significant at the 1-percent or 5-percent levels.

¹⁶² James H. North, "A Cost Effective Use of Selective Reenlistment Bonuses and Lateral Occupation Moves," Center for Naval Analyses, September 1994, 19-38.

¹⁶³ *Ibid.*, 23.

3. Promotion

In the paper, “What Characterizes Successful Enlistees in the All-Volunteer Force: A Study of Male Recruits in the U.S. Navy,” Cooke and Quester¹⁶⁴ attempt to identify the relationship between the background characteristics of men at the time they enlist in the U.S. Navy and their success in the military. Success in the military is measured by three indicators: completion of enlistment; completion of enlistment as a petty officer; and retention beyond the first term. These three measures are similar to measures used in this thesis.

Logit models are used to estimate the effect of background characteristics on enlistees’ success. The results of the study suggest AFQT score is highly significant in predicting “successful” recruits. Cooke and Quester also determine that African-American and Hispanic recruits have higher probabilities of completing their first terms, and of achieving the rank that makes them eligible for reenlistment. Recruits with a high school diploma and an AFQT score classified in Categories I-IIIa (commonly referred to as above-average AFQT scores) have a higher predicted rate of success than do non-diploma graduates and recruits whose AFQT scores are in categories IIIb-V. The study suggests the most successful recruits are those with high school diplomas and an above-average AFQT scores. Moreover, participation in DEP is found to positively affect the probability of success in the Navy.

B. ENLISTED PERSONNEL DATA

The personnel data set was created by the Defense Manpower Data Center (DMDC), Monterey, California, based on original data provided by the Military Entrance Processing Command (MEPCOM). The MEPCOM data file contains information about enlistees in all services for Fiscal Years 1990 through 1998. There is information for each recruit at accession and in Fiscal Year 2002, or the date of separation. Since information is available only at these career points, the file is not a true longitudinal data file. The file information was converted to SAS format for purposes of this analysis.

¹⁶⁴ Timothy W. Cooke and Aline O. Quester, “What Characterizes Successful Enlistees in the All-Volunteer Force: A Study of Male Recruits in the U.S. Navy,” *Social Science Quarterly* 73, no. 2, June 1992, 238-251.

Based on the studies presented in the literature review, the samples analyzed in this thesis are limited to individuals with four-year first-term enlistment contracts. The sample for the attrition, retention, and promotion models consists of non-prior service, active-duty enlistees with four-year initial contracts.¹⁶⁵ Of all enlistment contract lengths, four-year contracts are the most common; more than 50 percent of the observations in this data set belong to this contract-length category. Since the motivations and tastes of enlistees who opt for shorter or longer contracts may differ, this study focuses only on four-year enlistees.

Since the Army and Air Force limit the enlistment of noncitizens to a maximum of eight years, prior-service enlistees in these two services contain almost no noncitizens. Therefore, prior-service enlistees are not included in the samples. Because Reserve Force policies regarding noncitizens differ from policies for active duty, Reserve enlistees are also excluded. The number of observations for each service for Fiscal Years 1990 – 1998 that meets the restrictions described above is shown in Table 2.

Table 2. Number of Observations in Data Set for Attrition and Retention Models

Branch of Service	Total Number of Observations for FY 90–98 Cohorts	Total Number of Observations for FY 90-98 Cohorts, Minus Age Deletions¹⁶⁶	Total Number of Observations for FY 90-98 Cohorts With 4-year Initial Contracts, Minus Age Deletions
All Services	1,203,730	1,197,117	894,701
Army	463,377	458,971	205,905
Navy	300,347	298,246	294,808
Air Force	218,098	218,041	202,064
Marine Corps	221,908	221,859	191,924

¹⁶⁵ The promotion models also contain individuals with five-year and six-year first-term enlistment contracts.

¹⁶⁶ Any observation with age greater than 31 years was deleted from the data set.

The analysis sample for the attrition and retention models includes all nine entry cohorts. The analysis sample for the promotion model excludes all new recruits who suffered first-term attrition. It is also restricted to cohorts from Fiscal Years 1996 through 1998. The data are restricted because the pay-grade variable in the data set is not available for each person for each year. Therefore, it is impossible to determine an individual's pay grade at any specific point in time. Since it is almost certain that individuals with more than six years of service who are still serving on active duty would have attained the E-4 pay grade, the sample excludes these observations. An additional reason for the exclusion is related to the higher retention rate of noncitizens (see Tables 3-7). Exclusion of Fiscal Year 1990 through 1995 cohorts serves to minimize self-selection bias associated with the higher noncitizen retention rate. The number of observations for each service for Fiscal Years 1996 – 1998 that matches the parameters described above is shown in Table 3.

Table 3. Number of Observations in Data Set for Promotion Models

Branch of Service	Total Number of Observations for FY 96–98 Cohorts	Observations Remaining After Age Restriction^a	Observations Remaining After First-Term Contract Length Restriction^b	Observations Remaining After Attrition Deletions^c
All	517,665	514,562	422,842	215,412
Army	204,082	201,945	112,287	44,715
Navy	122,373	121,472	120,516	65,957
Air Force	92,315	92,283	91,510	56,717
Marine Corps	98,895	98,862	98,529	48,023

^a Observations for enlistees with age greater than 31 years are deleted from the data set.

^b The sample is restricted to enlistees with four-year, five-year, and six-year contract lengths.

^c Observations for enlistees who suffered attrition are deleted from the data set.

C. VARIABLE DESCRIPTIONS

1. Dependent Variables

The literature review reveals that three measures of success are commonly used, including first-term attrition, retention beyond the first term, and promotion to E-4. These three measures are also analyzed in this study. The top panel of Table 4 provides a description of the dependent variables.

a. Indicator of First-Term Attrition

To determine whether an individual stays long enough to complete the initial contract, the attrition variable is constructed as a dichotomous variable. The variable is coded as a '1' if an individual stays for forty-five months or longer and as a '0' if he or she leaves before completing forty-five months. Forty-five months was chosen as the cut-off time since it is not uncommon for individuals to be allowed to separate from the military a few months prior to the true end of their enlistment contracts. Since the military approves these requests, these individuals are considered to have completed their enlistments.

b. Indicator of Retention Beyond First Term

Either reenlisting for a second term or extending the initial contract is considered retention beyond the first term. The dependent variable in this model is a dichotomous variable that indicates whether an enlistee stays after four years of service. The variable is coded as a '1' if there is no separation date, or if the length of service either in Fiscal Year 2002 or at the date of separation is greater than forty-eight months (four years), and as a '0' otherwise.

c. Indicator of Promotion to E-4

Although promotion to E-4 is not very selective in any branch of the service, it is one of the eligibility requirements for reenlistment. An enlistee who is reenlistment-eligible may be considered an asset to the armed forces. The dependent variable for this model is a binary variable that is coded as a '1' if an individual accomplishes a pay grade greater than or equal to E-4, and as a '0' otherwise.

2. Independent Variables

Personal background characteristics used in all models include AFQT percentile, education categories, marital status, age (in years) at time of enlistment, race/ethnic group,¹⁶⁷ and number of dependents. All explanatory (independent) variables are listed in Table 4. These variables have been used by researchers in prior studies to control for the effects of personal differences on attrition, retention and promotion.

The noncitizen variable is created by using the citizenship code 'spd' in the data set. In each model, this variable captures the differences in 'success' between citizens and non-citizens. The unemployment variable is used only in the retention model, and is created using local area unemployment statistics for Fiscal Years 1994 through 2002¹⁶⁸ in the state home of record of enlistees. Unemployment rates four years after the year of enlistment are used for each cohort to control for the economic conditions at the time of the reenlistment decision.

The retention model lacks a crucial ACOL variable, since the data set does not include any monetary information (military pay and reenlistment bonuses) for the individuals. In lieu of an ACOL variable, military occupational specialty (MOS) codes are included in the model. The assumption is that the MOS-specific dummy variables will serve as proxies for the relative military and civilian employment opportunities. Ten MOS variables were created using the first digit of the old MOS codes (the DoD Primary Occupation Codes [DPOCs]) found in the Department of Defense (DoD) occupational code conversion table¹⁶⁹:

¹⁶⁷ The data set includes observations for Native Americans that are coded as "noncitizen." The Native American category includes individuals who describe themselves as either Eskimos, natives of the Aleutian Islands, or natives of North America. Individuals who consider themselves to be members of the last category may be citizens of Mexico or Canada. This may be the reason why observations for Native Americans exist in the data set.

¹⁶⁸ United States Bureau of Labor Statistics, <http://data.bls.gov/cgi-bin/surveymost?la>, accessed February 2004.

¹⁶⁹ United States Department of Defense Occupational Database Manual, DoD 1312.1-1, <http://www.odm.asmr.com/ode>, accessed January 2004. The old-to-new DoD occupation code conversion table is provided in Appendix C. The codes listed in column two ("Old DOD Code") are used to create the retention model.

This conversion table translates individual Service occupational designations into a common coding and occupational scheme in order to facilitate cross-Service occupational comparisons. The Primary Occupation Code indicates the occupation for which the Service member has been trained or the most significant skill held by the individual.¹⁷⁰

Months spent in DEP is included in both the first-term attrition and the retention models, as previous studies suggest participation in DEP affects enlistees' adjustment to the military lifestyle, thereby resulting in lower attrition and higher retention rates. Finally, a moral waiver variable is created and used to control for the effect of a moral waiver on the success of an enlistee.¹⁷¹

¹⁷⁰ Military Entrance Processing Command (MEPCOM) Coding and Data Elements Description, January 1993, provided by Defense Manpower Data Center, Monterey, California.

¹⁷¹ Incidents that require moral waivers include traffic violations, misdemeanors, felonies, and previous history of drug and/or alcohol abuse.

Table 4. Variable Definitions

Table 4. Variable Definitions

Variable	Definition
<u>Dependent Variables</u>	
ATTRITION	=1 if enlistee leaves before completing 45 months of service; else 0
RETENTION	=1 if enlistee extends beyond the first term, or reenlists for a second term; else 0
PROMOTION	=1 if enlistee is promoted to E-4 any time during enlistment; else 0
<u>Independent Variables</u>	
NONCIT	=1 if enlistee is not a citizen of the United States; else 0
AFQTPERC	Enlistee's AFQT percentile value
FEMALE	=1 if enlistee is female; else 0
HSDS	=1 if highest education level attained by enlistee is a high school diploma; else 0
SOMCOLL	=1 if enlistee has college education (1 to 4 year) without a degree; else 0
COLLGRAD	=1 if enlistee has a bachelor's degree or higher; else 0
ALTGRAD	=1 if enlistee has a GED or has not completed high school education; else 0
BLACK	=1 if enlistee is Black; else 0
LATINO	=1 if enlistee is Latino; else 0
NATAM	=1 if enlistee is Native American; else 0
API	=1 if enlistee is API; else 0
UNKNRACE	=1 if enlistee's race/ethnicity is unknown; else 0
MARRIED	=1 if enlistee is married; else 0
DEPENDENT	Number of dependents
MORWAIVER	=1 if enlistee has a moral waiver code; else 0
AGE	Age at time of enlistment
MONDEP	Months spent in DEP
UNEMP	Unemployment rate of enlistee's home of record state
MOS _n	A set of ten binary variables (MOS10-MOS19) that identifies enlistee occupational specialties. The first digit of each DoD occupational code is used to categorize the enlistee observation by occupational specialty.

Any recruit with a length of service greater than 48 months is considered retained.

D. PRELIMINARY ANALYSIS

1. Descriptive Statistics for Enlistees in All Services

Table 5 provides variable means for all observations in the data set, by citizenship category. In addition, the race-ethnic categories are further subdivided to show six specific ethnicity categories of interest, plus categories for other and unknown ethnicities.¹⁷² Noteworthy differences exist between the two citizenship groups for the race-ethnicity and ethnicity categories, and for the rates of first-term attrition, retention beyond the first term, and promotion to E-4 (dependent variables). The service with the largest proportion of noncitizens is the Navy; the Marine Corps has the smallest proportion. Thirty-five percent of all noncitizens are in the Navy, while 18 percent are in the Marine Corps.

Noncitizens have an average first-term attrition rate that is 9 percentage points lower than the average rate for citizens, and the average rate of retention beyond the first term is 10 percentage points higher for noncitizens than for citizens. The average rate of promotion to E-4 is nearly 2 percentage points higher for noncitizens.

Country of origin is not included in the data file, and specific ethnicity categories are provided for only those individuals who describe themselves as Latino, Asian/Pacific Islander, or Native American. The 'other' category of ethnicity contains the largest proportion of observations for all services. This group includes all those individuals who do not describe themselves as Latino, Native American, or Asian/Pacific Islander. Individuals who consider themselves to be of African and European heritage would be included in this category.

Latinos comprise almost 23 percent of all noncitizens in the data set. Of all members of the Latino group, 10 percent are Mexican. In contrast, only about 8 percent of all citizens in the data set describe themselves as Latino, with only 3 percent described as Mexican. Similarly, the proportion of Filipinos, Pacific Islanders, and all other Asians in the noncitizen category is substantially higher than in the citizen category. Nearly 8 percent of noncitizens are Filipinos, while

¹⁷² Race-ethnic categories and ethnicity categories are self-described by enlistees.

less than 1 percent of citizens are members of this group. Asians and Pacific Islanders (APIs) other than Filipinos comprise nearly 9 percent of all noncitizens, while just over 1 percent of citizens are categorized as such.

Appendix D provides information on the total number of noncitizens for all services, as well as the number of noncitizens for each branch of the services. The number of noncitizens in each race-ethnicity and ethnicity category is also shown.

Table 5. Mean Characteristics of Noncitizen and Citizen Enlistees in All Services
FY 1900 – FY 1998

Table 5. Mean Characteristics of Noncitizen and Citizen Enlistees in All Services FY 1990 - FY 1998			
Dependent Variables	Noncitizen	Citizen	All
ATTRITION	0.260	0.351	0.347
RETENTION	0.500	0.404	0.412
PROMOTION	0.885	0.869	0.870
Independent Variables			
AFQTPERC	57.44	61.67	61.20
FEMALE	0.178	0.160	0.168
HSDG ^a	0.910	0.923	0.917
SOMCOLL	0.010	0.007	0.007
COLLGRAD	0.018	0.017	0.017
ALTGRAD	0.060	0.051	0.056
BLACK	0.146	0.169	0.176
LATINO	0.244	0.076	0.086
NATAM	0.019	0.010	0.010
API	0.162	0.018	0.027
MARRIED	0.362	0.388	0.380
DEPENDENT	0.680	0.736	0.721
MORWAIVER	0.201	0.229	0.227
AGE	20.04	19.60	19.64
MONDEP	4.310	4.530	4.530
UNEMP	5.760	5.050	5.056
MOS10	0.180	0.170	0.176
MOS11	0.059	0.091	0.089
MOS12	0.051	0.088	0.086
MOS13	0.083	0.060	0.061
MOS14	0.024	0.023	0.027
MOS15	0.169	0.124	0.127
MOS16	0.192	0.174	0.175
MOS17 ^a	0.040	0.041	0.042
MOS18	0.083	0.071	0.073
MOS19	0.114	0.148	0.147
ARMY	0.223	0.223	0.223
NAVY	0.348	0.318	0.319
AIR FORCE	0.227	0.206	0.208
MARINE CORPS	0.176	0.222	0.219
SERVICE UNKNOWN	0.026	0.031	0.031
NONCITIZEN	-----	-----	0.031
Ethnic Categories			
MEXICAN	0.100	0.033	0.037
ALL OTHER LATINO	0.129	0.045	0.050
NATIVE AMERICAN	0.019	0.010	0.010
FILIPINO	0.076	0.007	0.011
PACIFIC ISLANDER	0.012	0.002	0.003
ALL OTHER ASIAN	0.073	0.009	0.012
OTHER	0.603	0.891	0.876
UNKNOWN	0.003	0.001	0.001

Source: Derived from data provided by the Defense Manpower Data Center, 2003.

Sample consists of 921,762 Army, Navy, Air Force and Marine Corps enlistees.

The mean values for the noncitizen and citizen groups for all variables are significantly different at the .01 level except those designated by ^a(significant at .05 level).

2. Descriptive Statistics for Army Enlistees

Table 6 provides variable mean values for all Army observations in the data set. The attrition rate for noncitizens is 7 percent lower than for noncitizens. The retention rate and promotion rate for the noncitizen group are 6 percent higher and 3 percent higher, respectively.

Noncitizens comprise 3.1 percent of all Army recruits. The ethnicity of nearly 66 percent of all noncitizens is categorized as 'other' or 'unknown'. Almost 22 percent of noncitizens are Latinos, while less than 7 percent of citizens describe themselves as Latinos. Mexican is the largest single ethnicity category within the Latino grouping, with almost 9 percent of all noncitizens in the Mexican category.

Asians and Pacific Islanders comprise nearly 12 percent of all noncitizens, while less than 2 percent of citizens are APIs. Filipino is the largest single ethnicity category within the API grouping, with almost 4 percent of all noncitizens in the Filipino category.

Table 6. Mean Characteristics of Army Noncitizen and Citizen Enlistees FY 1990 – FY 1998.

**Table 6. Mean Characteristics of Army Noncitizen and Citizen Enlistees
FY 1990 - FY 1998**

Dependent Variables	Noncitizen	Citizen	All
ATTRITION	0.315	0.387	0.383
RETENTION	0.453	0.389	0.393
PROMOTION	0.930	0.900	0.900
Independent Variables			
AFQTPERC	60.39	61.33	61.15
FEMALE	0.178	0.207	0.209
HSDG ^a	0.886	0.896	0.896
SOMCOLL	0.014	0.010	0.010
COLLGRAD	0.041	0.030	0.031
ALTGRAD	0.056	0.061	0.060
BLACK	0.188	0.235	0.236
LATINO	0.215	0.066	0.074
NATAM	0.010	0.007	0.007
API	0.120	0.016	0.021
MARRIED	0.370	0.385	0.387
DEPENDENT	0.656	0.714	0.718
MORWAIVER	0.074	0.095	0.093
AGE	20.48	19.97	20.02
MONDEP	3.720	3.910	3.893
UNEMP	5.700	5.100	5.110
MOS10	0.259	0.257	0.256
MOS11	0.061	0.096	0.093
MOS12	0.083	0.133	0.130
MOS13	0.117	0.085	0.086
MOS14	0.038	0.025	0.026
MOS15	0.247	0.159	0.165
MOS16	0.084	0.101	0.101
MOS17 ^a	0.025	0.021	0.022
MOS18	0.067	0.071	0.071
MOS19	0.016	0.048	0.048
NONCITIZEN	-----	-----	0.031
Ethnic Categories			
MEXICAN	0.087	0.025	0.028
ALL OTHER LATINO	0.129	0.042	0.046
NATIVE AMERICAN	0.010	0.007	0.007
FILIPINO	0.038	0.004	0.006
PACIFIC ISLANDER	0.021	0.003	0.004
ALL OTHER ASIAN	0.057	0.008	0.011
OTHER	0.657	0.908	0.895
UNKNOWN	0.002	0.002	0.002

Source: Derived from data provided by the Defense Manpower Data Center, 2003.

Sample consists of 205,905 Army enlistees.

The mean values for the noncitizen and citizen groups for all variables are significantly different at the .01 level except those designated by ^a(significant at .05 level).

3. Descriptive Statistics for Navy Enlistees

Table 7 provides variable mean values for all Navy observations in the data set. The attrition rate for noncitizens is significantly lower than for citizens, and the retention rate is significantly higher for the noncitizen group. The difference in attrition rates is 11 percentage points, while the retention rates differ by 12 percentage points. The difference in promotion rates between the 2 groups is small (0.4 percentage points), but statistically significant.

Noncitizens comprise 3.3 percent of all observations. The ethnicity of nearly 55 percent of all noncitizens is categorized as 'other' or 'unknown'. Almost 22 percent of all noncitizens are Latino, while only 9 percent of citizens are in this category. Similar to the Army, Mexican is the single largest ethnicity within the noncitizen Latino category, with nearly 9 percent of all noncitizens in this category.

The Navy has the largest percentage of API enlistees of all services. In the Navy sample data set, 20 percent of all noncitizens, and over 2 percent of all citizens are APIs. The Navy also has the largest percentage of Filipino enlistees of all services. Filipinos comprise over 13 percent of all noncitizens, and 1 percent of all citizens in the data set.

Table 7. Mean Characteristics of Navy Noncitizen and Citizen Enlistees FY 1990 – FY 1998

**Table 7. Mean Characteristics of Navy Noncitizen and Citizen Enlistees
FY 1990 - FY 1998**

Dependent Variables	Noncitizen	Citizen	All
ATTRITION	0.264	0.378	0.372
RETENTION	0.562	0.437	0.441
PROMOTION	0.874	0.870	0.871
Independent Variables			
AFQTPERC	55.65	61.91	61.50
FEMALE	0.167	0.147	0.147
HSDG	0.877	0.897	0.897
SOMCOLL	0.008	0.007	0.007
COLLGRAD*	0.010	0.012	0.011
ALTGRAD	0.099	0.081	0.080
BLACK	0.143	0.178	0.178
LATINO	0.217	0.088	0.095
NATAM	0.033	0.014	0.014
API	0.210	0.024	0.036
MARRIED	0.292	0.326	0.320
DEPENDENT	0.572	0.623	0.630
MORWAIVER	0.294	0.316	0.310
AGE	20.12	19.59	19.63
MONDEP	4.420	4.695	4.670
UNEMP	5.860	5.120	5.140
MOS10	0.087	0.080	0.176
MOS11	0.085	0.144	0.089
MOS12	0.046	0.095	0.086
MOS13	0.103	0.069	0.061
MOS14	0.007	0.008	0.027
MOS15	0.099	0.074	0.127
MOS16	0.324	0.244	0.175
MOS17*	0.047	0.056	0.042
MOS18	0.047	0.037	0.073
MOS19	0.151	0.190	0.147
NONCITIZEN	-----	-----	0.033
Ethnic Categories			
MEXICAN	0.086	0.032	0.034
ALL OTHER LATINO	0.132	0.056	0.061
NATIVE AMERICAN	0.033	0.014	0.014
FILIPINO	0.132	0.010	0.018
PACIFIC ISLANDER	0.011	0.003	0.002
ALL OTHER ASIAN	0.057	0.010	0.013
OTHER	0.546	0.874	0.855
UNKNOWN	0.003	0.001	0.001

Source: Derived from data provided by the Defense Manpower Data Center, 2003.

Sample consists of 294,808 Navy enlistees.

The mean values for the noncitizen and citizen groups for all variables are significantly different at the .01 level except those designated by *(not significant).

4. Descriptive Statistics for Air Force Enlistees

Table 8 provides variable means for all Air Force observations in the data set. The attrition rate for noncitizens is nearly 8 percentage points lower, and the noncitizen retention rate is almost 15 percentage points higher than for citizens. The difference in the rate of promotion for the 2 groups is small (0.001), but statistically significant.

The Air Force has the lowest proportion of noncitizens compared with the other services. Noncitizens comprise only 1.7 percent of all observations. The ethnicity of about 71 percent of these individuals is categorized as 'other' or 'unknown'. The Air Force has the lowest percentage of Latino (and Mexican) noncitizens of all services. The Air Force ranks second only to the Navy, however, in the proportion of noncitizens of Asian or Pacific Islander ethnicity. Nearly 14 percent of all noncitizens are API, with almost 8 percent of all noncitizens of Filipino ethnicity.

Table 8. Mean Characteristics of Air Force Noncitizen and Citizen Enlistees FY 1990 –FY 1998

**Table 8. Mean Characteristics of Air Force Noncitizen and Citizen Enlistees
FY 1990 - FY 1998**

Dependent Variables	Noncitizen	Citizen	All
ATTRITION	0.236	0.314	0.312
RETENTION	0.638	0.491	0.491
PROMOTION	0.946	0.945	0.945
Independent Variables			
AFQTPERC	62.89	64.99	64.94
FEMALE	0.269	0.242	0.242
HSDG	0.950	0.960	0.960
SOMCOLL ^a	0.012	0.007	0.007
COLLGRAD	0.010	0.019	0.019
ALTGRAD*	0.015	0.013	0.013
BLACK	0.131	0.148	0.149
LATINO	0.142	0.053	0.055
NATAM ^a	0.008	0.005	0.005
API	0.145	0.022	0.027
MARRIED*	0.433	0.469	0.469
DEPENDENT ^b	0.734	0.835	0.834
MORWAIVER	0.117	0.118	0.118
AGE	19.80	19.61	19.62
MONDEP*	4.390	4.650	4.650
UNEMP	5.710	4.950	4.950
MOS10	0.097	0.093	0.093
MOS11	0.068	0.080	0.079
MOS12	0.057	0.061	0.061
MOS13	0.120	0.082	0.084
MOS14 ^a	0.043	0.040	0.039
MOS15	0.201	0.166	0.169
MOS16	0.182	0.216	0.214
MOS17	0.048	0.046	0.046
MOS18	0.065	0.067	0.068
MOS19	0.116	0.146	0.145
NONCITIZEN	-----	-----	0.017
Ethnic Categories			
MEXICAN	0.056	0.022	0.022
ALL OTHER LATINO	0.086	0.031	0.033
NATIVE AMERICAN ^a	0.007	0.005	0.005
FILIPINO	0.079	0.008	0.011
PACIFIC ISLANDER ^a	0.008	0.001	0.002
ALL OTHER ASIAN	0.048	0.011	0.012
OTHER	0.710	0.921	0.912
UNKNOWN	0.004	0.001	0.001

Source: Derived from data provided by the Defense Manpower Data Center, 2003.
Sample consists of 202,064 Air Force enlistees.

The mean values for the noncitizen and citizen groups for all variables are significantly different at the .01 level except those designated by *(not significant), ^a(significant at .05 level), or ^b(significant at .10 level).

5. Descriptive Statistics for the Marine Corps Enlistees

Table 9 provides variable mean values for all Marine Corps observations. The attrition rate for noncitizens is 9 percentage points lower than for citizens, and noncitizens have a retention rate 6 percentage points higher than citizens. Noncitizens also have a rate of promotion to E-4 that is nearly 5 percentage points higher than the rate for citizens.

Noncitizens comprise 2 percent of all observations. The ethnicity of nearly 55 percent of these individuals is categorized as 'other' or 'unknown'. Of all services, the Marine Corps has the largest percentage of noncitizen and citizen Latinos. Nearly 35 percent of noncitizens are from Latin America or the Caribbean, and over 10 percent of all citizens are of Latino ethnicity. The single-largest ethnicity group for noncitizen enlistees is Mexican (18.6 percent), with 6 percent of all citizen enlistees of Mexican descent.

Compared with other services, APIs comprise a relatively small percentage of enlistees in the Marine Corps sample data set. The percentage of Filipino noncitizens is the smallest of all services, at 3 percent.

Table 9. Mean Characteristics of Marine Corps Noncitizen and Citizen Enlistees FY 1990 – FY 1998

Table 9. Mean Characteristics of Marine Corps Noncitizen and Citizen Enlistees FY 1990 - FY 1998			
Dependent Variables	Noncitizen	Citizen	All
ATTRITION	0.231	0.321	0.316
RETENTION	0.339	0.277	0.280
PROMOTION	0.811	0.765	0.767
Independent Variables			
AFQTPERC	53.98	56.73	56.54
FEMALE	0.072	0.063	0.063
HSDG	0.940	0.932	0.933
SOMCOLL ^a	0.003	0.003	0.003
COLLGRAD*	0.004	0.006	0.006
ALTGRAD	0.051	0.058	0.057
BLACK	0.120	0.148	0.149
LATINO	0.346	0.104	0.118
NATAM	0.018	0.012	0.012
API	0.094	0.013	0.018
MARRIED	0.373	0.362	0.364
DEPENDENT	0.713	0.744	0.718
MORWAIVER	0.255	0.377	0.373
AGE	19.40	19.18	19.20
MONDEP	5.070	5.300	5.292
UNEMP	5.700	4.960	4.980
MOS10	0.300	0.306	0.256
MOS11	0.010	0.021	0.093
MOS12	0.022	0.063	0.130
MOS13*	0.007	0.001	0.086
MOS14	0.018	0.021	0.026
MOS15	0.181	0.125	0.165
MOS16*	0.111	0.112	0.101
MOS17	0.033	0.027	0.022
MOS18	0.177	0.139	0.071
MOS19	0.144	0.183	0.048
NONCITIZEN	-----	-----	0.020
Ethnic Categories			
MEXICAN	0.186	0.060	0.066
ALL OTHER LATINO	0.160	0.054	0.052
NATIVE AMERICAN	0.018	0.012	0.012
FILIPINO	0.031	0.004	0.006
PACIFIC ISLANDER	0.006	0.002	0.002
ALL OTHER ASIAN	0.050	0.006	0.009
OTHER	0.546	0.870	0.850
UNKNOWN	0.003	0.001	0.001

Source: Derived from data provided by the Defense Manpower Data Center, 2003.

Sample consists of 191,924 Marine Corps enlistees.

The mean values for the noncitizen and citizen groups for all variables are significantly different at the .01 level except those designated by *(not significant), ^a(significant at .05 level).

E. MODEL SPECIFICATIONS

Separate models for the attrition, retention and promotion outcomes were estimated for each of the four services. Since the personnel policies of each of the four services differ, separate service models provide a more reliable estimate of the effect of citizenship.

1. Model of First-Term Attrition

The attrition model developed for this study is based on models used in the studies discussed in the literature review (Section 1: Attrition). Multivariate logit models are used to estimate the probability of attrition, where:

$$\begin{aligned} LN(P_A / (1 - P_A)) = & \alpha + \beta_1 NONCIT + \beta_2 AFQTPERC + \beta_3 FEMALE + \beta_4 SOMCOLL \\ & + \beta_5 COLLGRAD + \beta_6 ALTGRAD + \beta_7 BLACK + \beta_8 LATINO \\ & + \beta_9 NATAM + \beta_{10} API + \beta_{11} UNKNRACE + \beta_{12} MARRIED \\ & + \beta_{13} DEPENDENT + \beta_{14} MORWAIVER + \beta_{15} AGE + \beta_{16} MONDEP. \end{aligned}$$

Characteristics that represent a substantial percentage of observations in the particular category, i.e., education, race-ethnicity, gender, etc., form the base case. The base case for each service is: citizen, male, HSDG, Caucasian, unmarried with no dependents, and without a moral waiver. Table 10 lists the estimated effects of each independent variable, as compared with the base case, on the probability of first-term attrition. The marginal effect of each variable may be calculated by comparing the probability of attrition for the base case with the probability of attrition when one variable in the base case is increased by one unit or from zero to one, and all other variables are held constant.

2. Model of Retention Beyond First Term

The specification of the retention model developed for this study is based on the models cited in the retention portion of the literature review (Section 2: Retention). The sample data set for retention includes all enlistees, regardless of attrition status. That is, the sample is not restricted to only those eligible for reenlistment. One reason for not excluding those who suffer attrition from the

retention model is that an individual's decision to leave clearly reflects a lack of interest in reenlistment. Also, policy makers may analyze the success of the entire entry cohort of enlistees.

The probability of retention is estimated using logit regression analysis, where:

$$\begin{aligned} LN(P_R / (1 - P_R)) = & \alpha + \beta_1 NONCIT + \beta_2 AFQTPERC + \beta_3 FEMALE + \beta_4 SOMCOLL \\ & + \beta_5 COLLGRAD + \beta_6 ALTGRAD + \beta_7 BLACK + \beta_8 LATINO \\ & + \beta_9 NATAM + \beta_{10} API + \beta_{11} UNKNRACE + \beta_{12} MARRIED \\ & + \beta_{13} DEPENDENT + \beta_{14} MORWAIVER + \beta_{15} AGE + \beta_{16} MONDEP \\ & + \beta_{17} UNEMP + \beta_j MOS_j. \end{aligned}$$

The base case for each service is: citizen, male, HSDG, Caucasian, unmarried with no dependents, without a moral waiver, in MOS 15 (personnel). Table 10 lists the estimated effects of each independent variable on the probability of retention beyond the first term. The marginal effect of each variable is calculated as outlined in the previous section.

3. Model of Promotion to E-4

The promotion model developed for this study is based on the Cook and Quester model cited in the literature review.¹⁷³ The sample includes only individuals who completed their first terms of enlistment. The model estimates the probability of promotion to E-4 while an individual is on active duty, i.e., it is not specific to the first-term. Since the data sample ends in Fiscal Year 2002, the data set is limited to Fiscal Year 1996 through 1998 cohorts to provide a reliable estimate of the probability of promotion during the first-term.

¹⁷³ Cooke and Quester, "What Characterizes Successful Enlistees in the All-Volunteer Force: A Study of Male Recruits in the U.S. Navy," 238-251.

Logit models are used to predict the probability of promotion, where:

$$\begin{aligned} LN(P_p / (1 - P_p)) = & \alpha + \beta_1 NONCIT + \beta_2 AFQTPERC + \beta_3 FEMALE + \beta_4 SOMCOLL \\ & + \beta_5 COLLGRAD + \beta_6 ALTGRAD + \beta_7 BLACK + \beta_8 LATINO \\ & + \beta_9 NATAM + \beta_{10} API + \beta_{11} UNKNRACE + \beta_{12} MARRIED \\ & + \beta_{13} DEPENDENT + \beta_{14} MORWAIVER + \beta_{15} AGE. \end{aligned}$$

The base case for each service is: citizen, male, HSDG, Caucasian, unmarried with no dependents, and without a moral waiver. Table 10 lists the estimated effects of each independent variable on the probability of promotion to E-4. The marginal effect of each variable is calculated as outlined in the attrition model section.

F. ESTIMATED EFFECTS OF EXPLANATORY VARIABLES

The variable for noncitizen is hypothesized to be associated with lower rates of attrition and higher rates of retention and promotion. This hypothesis is based on the historical service of noncitizens in the military, as well as interviews conducted for this study. Noncitizens and citizens alike view military service as a valuable opportunity to gain job training and experience, and a means to achieve advanced education. For noncitizens, enlistment also provides a pathway for expedited naturalization. The results of the 2004 CNA study by Hattiangadi, Lee and Quester¹⁷⁴ is supportive of the hypothesis for noncitizen attrition. The authors find the noncitizen variable in their models has a negative effect on boot-camp and first-term attrition rates for Marine Corps enlistees.

AFQT percentile is expected to be associated with lower rates of attrition and higher promotion rates. Alternative diploma status (GED, etc.) is predicted to be associated with higher rates of attrition and lower retention and promotion rates, compared with HSDG. The results of a 2001 CNA study by Quester and Kimble¹⁷⁵ suggest higher AFQT scores and HSDG have negative effects on

¹⁷⁴ Hattiangadi, Lee and Quester, "Recruiting Hispanics: The Marine Corps Experience Final Report."

¹⁷⁵ Quester and Kimble, "Final Report: Street-to-Fleet Study, Volume I: Street-to-Fleet for the Enlisted Force."

attrition rates for Marine Corps enlistees. In a separate study by Cooke and Quester,¹⁷⁶ high AFQT scores and HSDG are predictors of lower attrition rates, as well as higher rates of retention and promotion to E-4. These findings are consistent with the notion that attainment of a high school diploma signals an individual's ability to fulfill commitments. Since AFQT is often treated as a measure of cognitive ability, a higher test score is consistent with a higher probability of first-term contract completion.

In contrast to the retention findings of the Cooke and Quester study, a 1991 study by Quester and Adedeji¹⁷⁷ finds that Marines in the top two AFQT categories have lower reenlistment rates. The difference between these studies is that Cooke and Quester analyze retention for all Navy enlistees, whereas Quester and Adedeji include only those enlistees who are eligible for reenlistment. Like Cooke and Quester, all recruits in this study are included in the retention sample. Thus, higher retention rates are expected for individuals with higher AFQT, and for HSDG recruits.

The hypothesized effects of some college education and completion of college are indeterminate. None of the reviewed studies included either of these variables in the models. In addition, the number of observations for these two categories is relatively small. Therefore, it is difficult to predict their effect on attrition, retention, and promotion rates. These categories are included in the study to determine their predictive effect on measures of success.

Females are expected to be associated with higher attrition rates based on the literature. The findings of Hattiangadi, Lee and Quester¹⁷⁸ indicate women have higher attrition rates than men in the Marine Corps. Women are hypothesized to have a positive effect on retention, based on the findings of

¹⁷⁶ Cooke and Quester, "What Characterizes Successful Enlistees in the All-Volunteer Force: A Study of Male Recruits in the U.S. Navy."

¹⁷⁷ Quester and Adedeji, "Reenlisting in the Marine Corps: The Impact of Bonuses, Grade, and Dependency Status."

¹⁷⁸ Hattiangadi, Lee and Quester, "Recruiting Hispanics: The Marine Corps Experience Final Report."

Quester and Adedeji¹⁷⁹ in their 1991 study of Marine Corps enlistees. The reviewed literature did not contain studies with predicted rates of promotion to E-4 for women. Since a variety of confounding sociological and economic factors may impact the promotion of junior enlisted women, the hypothesis for this variable is indeterminate.

Enlistees with dependents and married enlistees (a subset of enlistees with dependents) often have greater financial responsibilities than do their single counterparts with no dependents. For this reason, they may be more inclined to continue serving in the military for reasons of job security and benefits. Based on this assumption, these variables are expected to be associated with lower attrition and higher retention rates. The results of a study by Quester and Adedeji suggest married Marines have a higher probability of reenlistment.¹⁸⁰

Enlistees with dependents and married enlistees have financial incentives to advance in their military occupational fields. Therefore, their performance levels will tend to be higher. The hypothesized effect of these two variables on promotion is positive.

The predicted effect of age on attrition, retention, and promotion is indeterminate. None of the studies included in the literature review contained this variable. However, it is included in all three models in this study to ascertain its estimated effect on measures of success.

Many of the models reviewed contain variables for race-ethnicity. Specifically, race-ethnicity variables for Blacks and Latinos are included in Cooke and Quester's 1992 study of Navy enlistees.¹⁸¹ In their results, both variables were associated with higher rates of success, i.e., lower first-term attrition rates,

¹⁷⁹ Quester and Adedeji, "Reenlisting in the Marine Corps: The Impact of Bonuses, Grade, and Dependency Status."

¹⁸⁰ Ibid.

¹⁸¹ Cooke and Quester, "What Characterizes Successful Enlistees in the All-Volunteer Force: A Study of Male Recruits in the U.S. Navy."

higher rates of retention beyond the first term, and higher rates of promotion to E-4. These findings may be related to the lower overall socioeconomic status of individuals in these categories.

The selected literature review does not contain any studies with variables for the Asian/Pacific Islander race-ethnicity variable. The literature review of the history of noncitizens in the military, and the interviews conducted with noncitizens suggest Asian/Pacific Islanders may have higher rates of success in the military than Caucasians. For this reason, the Asian/Pacific Islander variable is hypothesized to be associated with lower attrition rates and higher rates of retention and promotion.

No variable for the race-ethnicity category of Native American is found in the literature review of enlistment studies. Additionally, the relative number of Native American recruits is small. For this reason, the hypotheses for attrition, retention, and promotion are indeterminate.

To determine the effect of a moral waiver on the success of an enlistee a variable for this category is included in all three models. A moral waiver may indicate incompatibility with military lifestyle and difficulty with authority. Therefore, this variable is hypothesized to be associated with higher rates of attrition and lower rates of retention and promotion.

Local (state) unemployment rates are included in the retention models. Higher unemployment rates may correlate with higher rates of retention due to a lack of opportunities for enlistees in the civilian employment sector. The results of the 1991 study by Quester and Adedji¹⁸² suggest an increase in the unemployment rate is associated with higher retention rates. Thus, higher unemployment rates are hypothesized to have a positive impact on retention.

The results of previous studies indicate participation in DEP is associated with lower attrition rates and higher rates of retention. Quester and Kimble¹⁸³

¹⁸² Quester and Adedjei, "Reenlisting in the Marine Corps: The Impact of Bonuses, Grade, and Dependency Status."

¹⁸³ Quester and Kimble, "Final Report: Street-to-Fleet Study, Volume I: Street-to-Fleet for the Enlisted Force."

found lower predicted attrition rates for DEP participants. The results of Cooke and Quester's study¹⁸⁴ suggest DEP participation positively affects the probability of success in the Navy. Therefore, the variable for months in DEP is expected to be associated with lower rates of attrition and higher rates of retention.

Since each MOS code used in the retention model for this study includes numerous occupations, it is difficult to predict the effect of each code on retention. Therefore, the hypothesized association between MOS codes and retention is indeterminate. Table 10 provides a summary of the hypothesized effects of each variable on the models.

Table 10. Estimated Effects of Explanatory Variables

Variable Names	Estimated Effects		
	Attrition	Retention	Promotion
NONCITIZEN	-	+	+
AFQTPERC	-	?	+
FEMALE	+	+	?
SOMCOLL	?	?	?
COLLGRAD	?	?	?
ALTGRAD	+	-	-
BLACK	-	+	+
LATINO	-	+	+
NATAM	?	?	?
API	-	+	+
MARRIED	-	+	+
DEPENDENT	-	+	+
MORWAIVER	+	-	-
AGE	?	?	?
MONDEP	-	+	Not Included
UNEMPLOYMENT	Not Included	+	Not Included
MOS	Not Included	?	Not Included

A '-' or '+' sign indicates the expected effect of the independent variable on the predicted value of the dependent variable. A '?' indicates the expected effect of the independent variable is unknown.

¹⁸⁴ Cooke and Quester, "What Characterizes Successful Enlistees in the All-Volunteer Force: A Study of Male Recruits in the U.S. Navy."

G. RESULTS

1. First-Term Attrition

The results of the first-term attrition models for all services are shown in Table 11. Most coefficients are significant at the 1-percent level. Negative coefficients indicate a lower predicted probability of attrition, while positive coefficients indicate a higher predicted probability of attrition. The sample size for each service, as well as R-square and likelihood ratios are shown. The complete analysis of maximum likelihood estimates for each service is provided in Appendix E.

Table 11. Logit Regression Estimates for Attrition Models

Variable Name	Army	Navy	Air Force	Marine Corps
NONCITIZEN	-0.5649	-0.6838	-0.4217	-0.5122
AFQTPERC	-0.0078	-0.0089	-0.0126	-0.0111
FEMALE	0.5996	0.2336	0.1990	0.7315
SOMCOLL	-0.2281	-0.3831	-0.2120	-0.2605
COLLGRAD	-0.4186	-0.2932	0.2191	-0.6115
ALTGRAD	0.6874	0.6764	0.4561	0.6400
BLACK	-0.3369	-0.1096	-0.2609	-0.0272 ^b
LATINO	-0.3795	-0.1641	-0.4082	-0.3471
NATAM	0.0137*	0.0425*	0.2440	0.0059*
API	-0.5600	-0.6387	-0.5518	-0.4516
UNKNRACE	-0.3408	-0.1603	-0.3355	-0.1880
MARRIED	-0.7998	-0.5771	-0.3065	-0.9304
DEPENDENT	-0.2867	-0.5438	-0.7391	-0.4899
MORWAIVER	0.1430	0.2875	0.1395	0.2235
AGE	0.0725	0.0431	0.0295	0.0908
MONDEP	-0.0371	-0.0471	-0.0360	-0.0439
INTERCEPT	-0.6656	-0.1836	0.2764	-1.1096
Sample Size	223,631	367,536	253,671	222,373
R-Square	0.1064	0.1263	0.1308	0.1498
Likelihood Ratio	25,149	49,635	35,551	36,077
Pr > Chi-Square	<0.0001	<0.0001	<0.0001	<0.0001

All variables significant at the .01 level except those designated by *(not significant), or ^b(significant at .10 level).

The marginal effects for the variables included in the logistic regression model are shown in Table 12. The probability of attrition for the base case, P(BASE CASE), in each service is the last entry in the table.

Table 12. Marginal Effects for Attrition Models

	Army	Navy	Air Force	Marine Corps
NONCIT	-0.140	-0.160	-0.101	-0.122
CITIZEN	base	base	base	base
AFQTPERC	-0.020	-0.022	-0.031	-0.027
FEMALE	0.141	0.058	0.050	0.179
MALE	base	base	base	base
SOMCOLL	-0.057	-0.093	-0.052	-0.064
COLLGRAD	-0.104	-0.072	-0.055	-0.144
ALTGRAD	0.160	0.166	0.113	0.158
HSDG	base	base	base	base
BLACK	-0.084	-0.027	-0.064	0.007 ^b
LATINO	-0.095	-0.040	-0.098	-0.084
NATAM	n.s.	n.s.	0.006	n.s.
API	-0.139	-0.150	-0.131	-0.109
UNKNRACE	-0.085	-0.040	-0.081	-0.046
CAUCASIAN	base	base	base	base
MARRIED	-0.195	-0.137	-0.075	-0.209
SINGLE	base	base	base	base
DEPENDENT	-0.072	-0.129	-0.171	-0.117
NO DEPENDENT	base	base	base	base
MORWAIVER	0.035	0.072	0.035	0.011
NO MORWAIVER	base	base	base	base
AGE	0.018	0.004	0.007	0.023
MONDEP	-0.012	-0.018	-0.009	-0.011
P(BASE CASE)	0.538	0.461	0.459	0.462

All variables significant at the .01 level except those designated by ^b(significant at .10 level).

As hypothesized, the variable for noncitizen is associated with significantly lower predicted attrition rates in all four services. Noncitizens have predicted attrition rates that range from 16 percentage points lower (Navy) to 10 percentage points lower (Air Force) than do citizens. The marginal effect for noncitizens in the Marine Corps is -12 percentage points, indicating noncitizen Marines have estimated first-term attrition rates that are 12 percentage points lower than that of citizen enlistees. This effect is somewhat higher than the effect reported in Hattiangadi, Lee and Quester's 2004 CNA study,¹⁸⁵ which found that noncitizen Marines have estimated first-term attrition rates that are 8 percentage points lower than citizen Marines.

Two variables for which the hypotheses are indeterminate are associated with lower rates of predicted attrition. The coefficients for the 'some college' and 'college graduate' variables are both negative and significant for all services, suggesting formal education beyond the high school level decreases the likelihood of attrition.

The hypotheses for the Native American and age variables are also indeterminate. The coefficient for Native American is only significant in the Air Force model, where it has a small, positive value. The variable for age is significant and positive for all services. This suggests each additional year of age over the base case is associated with a higher predicted probability of attrition.

In addition to the marginal effects of the variables for noncitizen, some college, and college graduate, the following variables are associated with lower estimated attrition rates: higher AFQT percentile, male, Black, Latino, API, married, dependents, and months in DEP.

2. Retention Beyond First Term

The results of the retention models for all services are shown in Table 13. Most coefficients are significant at the 1-percent level. Negative coefficients indicate a lower predicted probability of attrition, while positive coefficients

¹⁸⁵ Hattiangadi, Lee and Quester, "Recruiting Hispanics: The Marine Corps Experience Final Report."

indicate a higher predicted probability of attrition. The sample size for each service, as well as R-square and likelihood ratios are shown. The complete analysis of maximum likelihood estimates for each service is provided in Appendix F.

Table 13. Logit Regression Estimates for Retention Models

Variable Name	Army	Navy	Air Force	Marine Corps
NONCITIZEN	0.3341	0.3994	-0.0305*	0.2807
AFQTPERC	0.0035	0.0141	-0.0003*	0.0022
FEMALE	-0.3731	-0.0801	0.0608	-0.1355
SOMCOLL	0.0152*	-0.0063*	0.1069 ^b	0.0122*
COLLGRAD	0.0473*	-0.2218	-0.1486	-0.2183
ALTGRAD	-0.4576	-0.3291	-0.1072 ^a	-0.0277*
BLACK	0.4049	0.3745	0.3273	0.3697
LATINO	0.1917	0.0964	0.0636	0.1265
NATAM	0.0401*	0.1423	-0.1091*	0.0832*
API	0.3741	0.5964	0.3390	0.3080
UNKNRACE	0.3013	0.3506	0.2868	0.2474
MARRIED	0.9455	0.2168	-0.1259	0.2801
DEPENDENT	0.4473	0.5259	0.8222	0.4177
MORWAIVER	-0.0777	-0.1251	-0.0196*	-0.3092
AGE	-0.0711	-0.0139	-0.0281	-0.0284
MONDEP	0.0328	0.0236	0.0224	0.0166
UNEMP	0.0738	0.0008*	0.1036	0.0473
MOS10	-0.2813	-0.9133	-0.2736	-0.4548
MOS11	-0.2556	0.0644	-0.2167	0.6820
MOS12	-0.3277	-0.2981	0.0811	-0.0740
MOS13	-0.1977	0.6667	-0.2748	3.4859*
MOS14	0.0446*	0.4008	-0.3858	0.1170
MOS16	-0.4059	-0.2673	-0.2935	-0.1010
MOS17	-0.4862	-0.0779	-0.4966	-0.4236
MOS18	-0.2242	-0.2963	-0.6394	-0.4425
MOS19	-3.2248*	-3.7313*	-3.7656*	-2.4957*
Intercept	-0.4212	-0.9528	-0.2589	-0.8682
Sample Size	175,062	277,747	191,894	167,351
R-Square	0.1822	0.2767	0.2676	0.1681
Likelihood Ratio	35,204	89,983	59,755	30,793
Pr > Chi-Square	<0.0001	<0.0001	<0.0001	<0.0001

All variables significant at the .01 level except those designated by *(not significant), ^a(significant at .05 level), or ^b(significant at .10 level).

The marginal effects for the variables included in the logistic regression model are shown in Table 14. The probability of retention for the base case, P(BASE CASE), in each service is the last entry in the table.

Table 14. Marginal Effects for Retention Models

	Army	Navy	Air Force	Marine Corps
NONCIT	0.070	0.099	n.s.	0.060
CITIZEN	base	base	base	base
AFQTPERC	0.007	0.035	n.s.	0.005
FEMALE	-0.066	-0.019 ^b	0.014	-0.026
MALE	base	base	base	base
SOMCOLL	n.s.	n.s.	0.027 ^b	n.s.
COLLGRAD	n.s.	-0.053	-0.036	-0.042
ALTGRAD	-0.080	-0.078	-0.026 ^a	n.s.
HSDG	base	base	base	base
BLACK	0.086	0.093	0.082	0.080 ^b
LATINO	0.040	0.024	0.016	0.026
NATAM	n.s.	0.035	n.s.	n.s.
API	0.078	0.148	0.085	0.066
UNKNRACE	0.066	0.067	0.076	0.046
CAUCASIAN	base	base	base	base
MARRIED	0.216	0.054	0.031	0.059
SINGLE	base	base	base	base
DEPENDENT	0.096	0.131	0.200	0.091
		base	base	base
MORWAIVER	-0.015	0.030	n.s.	-0.057
NO MORWAIVER	base	base	base	base
AGE	-0.014	-0.003	-0.007	-0.006
MONDEP	0.006	0.006	n.s.	0.006
UNEMP	0.008	n.s.	0.026	0.010
MOS10	-0.051	-0.197	-0.066	-0.082
MOS11	-0.047	0.016	-0.052	0.153
MOS12	-0.059	-0.071	0.021	-0.015
MOS13	-0.037	0.165	-0.066	n.s.
MOS14	n.s.	0.100	-0.092	0.023
MOS15	base	base	base	base
MOS16	-0.068	-0.064	-0.070	-0.020
MOS17	-0.084	-0.018	-0.116	-0.077
MOS18	-0.042	-0.070	-0.148	-0.080
MOS19	n.s.	n.s.	n.s.	n.s.
P(BASE CASE)	0.264	0.428	0.446	0.276

All variables significant at the .01 level except those designated by ^a(significant at .05 level), or ^b(significant at .10 level).

As hypothesized, the variable for noncitizen is associated with significantly higher predicted retention rates. This is true for all services except the Air Force. In the civilian workforce, the predicted wage gap between immigrant and natives does not decrease measurably during an immigrant's working life.¹⁸⁶ In addition, there is evidence to suggest the sheepskin effect of a high school diploma is less for noncitizens than citizens.¹⁸⁷ All branches of the armed forces offer equal pay to their members, regardless of citizenship status. For this reason, noncitizen enlistees may view military service as a way to obtain equitable pay for their work.

Noncitizens have estimated retention rates ranging from 10 percentage points higher (Navy) to 6 percentage points higher (Marine Corps) than do citizens. The noncitizen variable is not significant in the Air Force model. This finding may be explained by the relatively low percentage of noncitizens in the Air Force.

The hypothesized effects of the variables for some college, college graduate, Native American, and age are all indeterminate. The coefficient for some college is significant in only the Navy model, where it is associated with a higher predicted rate of retention. The coefficient for college graduate is negative and significant in all but the Army model, indicating that attainment of a bachelor's degree is associated with a lower estimated probability of retention in the Navy, Air Force and Marine Corps. The coefficient for the variable Native American is only significant in the Navy model, where it is positive, indicating a higher estimated effect on retention. The coefficient for the age variable is significant and negative for all services. This suggests each additional year of age over the base case is associated with a lower predicted probability of retention.

¹⁸⁶ George J. Borjas, "The Economic Progress of Immigrants," 5.

¹⁸⁷ Betts and Lofstrom, "The Educational Attainment of Immigrants," 109.

The sign of the variable for female is negative and significant in all services except the Air Force. This finding is contrary to the stated hypothesis, and suggests that women have lower predicted rates of retention in all but the Air Force.

The sign of the variable for moral waiver is positive and significant for the Navy model, which differs from the hypothesis. The finding is interesting, in that it indicates existence of a moral waiver is associated with a higher predicted probability of retention in the Navy. Variables other than noncitizen that are associated with higher estimated retention rates are: higher AFQT percentile, male gender, Black, Latino, API, higher unemployment rate, married, dependents, and months in DEP.

3. Promotion to E-4

The results of the promotion models for all services are shown in Table 15. The goodness-of-fit of the promotion models is much poorer than that of the previous models for attrition and retention. This may be because the sample data is restricted to three cohort files. In addition, the lack of a time-specific promotion variable may be a consideration.

To provide more reliable estimates, the sample includes only those individuals who did not suffer attrition in the first term. That is, only those recruits who survived to the end of their first terms are included.¹⁸⁸ The sample size for each service, as well as R-square and Likelihood Ratios are shown. The complete analysis of maximum likelihood estimates for each service is provided in Appendix G.

¹⁸⁸ A separate analysis was performed using a sample that includes the individuals who suffered first-term attrition. The marginal effect of the noncitizen variable is substantially larger in this model. However, the analysis may contain a self-selection bias due to the higher retention rate of noncitizens. The results of this analysis are provided in Appendix H.

Table 15. Logit Regression Estimates for Promotion Models

Variable Name	Army	Navy	Air Force	Marine Corps
NONCITIZEN	0.5665	0.3468	0.4961	0.4783
AFQTPERC	0.0090	0.0229	0.0087	0.0128
FEMALE	-0.1889	-0.1202	0.3130	0.1594
SOMCOLL	0.1821*	0.6433	0.1677*	0.6413 ^a
COLLGRAD	2.5822	0.5390	0.8555	-0.4394
ALTGRAD	-0.7893	-0.6291	0.0069*	-0.4643
BLACK	0.1581	-0.2932	-0.2867	-0.1995
LATINO	0.3139	0.0283*	-0.1307 ^b	0.0310*
NATAM	-0.2262*	-0.1341*	-0.4205 ^b	-0.2337 ^a
API	0.6103	0.3363	0.2936 ^a	0.1643 ^b
UNKNRACE	0.2708*	0.0118*	0.1763*	-0.0460*
MARRIED	0.9033	0.3829	0.0063*	-0.0429*
DEPENDENT	0.1277	0.1970	0.3149	0.1261
MORWAIVER	-0.0814*	-0.2807	-0.1006 ^b	-0.2975
AGE	-0.0095*	0.0108 ^b	0.0829 ^b	0.0258
Intercept	0.3905	0.4659	0.4943	0.1681
Sample Size	44,715	65,957	56,717	48,023
R-Square	0.0346	0.0364	0.0093	0.0179
Likelihood Ratio	1,575	2,445	532	868
Pr > Chi-Square	<0.0001	<0.0001	<0.0001	<0.0001

All variables significant at the .01 level except those designated by *(not significant), ^a(significant at .05 level), or ^b(significant at .10 level).

The marginal effects for the variables included in the logistic regression model are shown in Table 16. The probability of promotion for the base case, P(BASE CASE), in each service is the last entry in the table.

Table 16. Marginal Effects for Promotion to E-4

	Army	Navy	Air Force	Marine Corps
NONCIT	0.060	0.030	0.024	0.065
CITIZEN	base	base	base	base
AFQTPERC	0.011	0.020	0.005	0.019
FEMALE	-0.025	-0.012	0.016	0.024
MALE	base	base	base	base
SOMCOLL	n.s.	0.048	n.s.	0.082 ^a
COLLGRAD	0.134	0.042	0.035	-0.078
ALTGRAD	-0.128	-0.077	n.s.	-0.084
HSDG	base	base	base	base
BLACK	0.018	-0.032	-0.019	-0.033
LATINO	0.035	n.s.	-0.008 ^b	n.s.
NATAM	n.s.	n.s.	-0.030 ^b	-0.040 ^a
API	0.061	0.028	0.015 ^a	0.025 ^b
UNKNRACE	n.s.	n.s.	n.s.	n.s.
CAUCASIAN	base	base	base	base
MARRIED	0.081	0.032	n.s.	n.s.
SINGLE	base	base	base	base
DEPENDENT	0.015	0.017	0.016	0.019
NO DEPENDENT	base	base	base	base
MORWAIVER	-0.010*	-0.030	-0.006 ^b	-0.051
NO MORWAIVER	base	base	base	base
AGE	n.s.	0.001 ^b	0.004 ^b	0.004
P(BASE CASE)	0.853	0.891	0.936	0.802

All variables significant at the .01 level except those designated by *(not significant), ^a(significant at .05 level), or ^b(significant at .10 level).

As hypothesized, the variable for noncitizen is associated with significantly higher predicted rates of promotion to E-4 for all services. For several reasons, noncitizens may be more highly motivated to serve. This higher motivation may correspond with higher levels of job performance, which would affect promotion rates. From an economic perspective, service in the military allows immigrants a means to attain equitable pay for their labor efforts. It also affords them the

opportunity to increase their human capital. Immigrants who are motivated to complete their first enlistment contracts for these reasons might also be more likely to have high job performance levels and higher corresponding promotion levels. A last factor, assimilation, may play a role in noncitizens' motivation to perform at higher levels than the average enlistee.

Noncitizens have a significantly higher estimated probability of promotion to E-4 in all four services. Their predicted promotion rates range from 6.5 percentage points higher (Marine Corps) to 2.4 percentage points higher (Air Force) than citizens. Other variables that have a positive effect on the predicted promotion rate are: higher AFQT percentile, male gender, Latino (except Air Force), API, married, and dependents.

The hypothesized effects of the following variables are indeterminate: some college, college graduate, female, Native American, and age. The coefficient for some college is significant and positive for Navy and Marine Corps models, and not significant for the Army and Air Force models. The coefficient for college graduate is significant and positive for Army, Navy and Air Force models. These findings suggest education beyond the high school level is associated with higher predicted probabilities of promotion to E-4. The Marine Corps model is the exception, as the coefficient for college graduate is significant and negative.

The results for the female variable are mixed for the 4 services. The coefficient is negative and significant for the Army and Navy models, and positive and significant for the Air Force and Marine Corps models. The coefficient for the Native American variable is negative and significant for the Air Force and Marine Corps models, and not significant for the Army and Navy models. The coefficient for age is positive and significant for the Navy, Air Force and Marine Corps models, indicating a greater likelihood of promotion to E-4 with each additional year of age over the base case. The coefficient for age is not significant for the Army.

The hypothesized effect of the Black race-ethnic variable is positive. The actual coefficients for the Navy, Air Force, and Marine Corps, however, are negative and significant, indicating Black enlistees have a lower predicted probability of promotion for these three services.

The only branch of the armed forces for which the coefficient for the Latino variable is negative and significant is the Air Force. This suggests Latinos have a lower predicted probability of promotion to E-4 in this service. Conversely, Latinos have a higher estimated probability of promotion in the Army, Navy, and Marine Corps, as hypothesized.

4. Summary of Results

The noncitizen variable has a significant effect on the predicted measures of success for all services.¹⁸⁹ Predicted first-term attrition rates are significantly lower for noncitizens, and predicted retention beyond the first term and promotion to E-4 are significantly higher for noncitizens. These findings indicate separate models for noncitizens may be of value, as they could provide a more comprehensive analysis of the effect of demographic and other variables on the success of noncitizens.

¹⁸⁹ Air Force retention is the only model in which the noncitizen variable is not significant.

V. SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

Frequently on the return of a United States vessel from a cruise, about the only (U.S.) nationality she has is in her officers and the flag flying at her peak.¹⁹⁰

A. SUMMARY

Noncitizens have provided valuable service to the armed forces since the nation's founding.¹⁹¹ The purpose of this study is to offer a more complete picture of this important minority group in the military. A historical review of noncitizens' service, an exploration of their motivations to serve, and statistical analyses of the success of recent noncitizen enlistees are presented to facilitate a better understanding of the contributions these individuals have made to the United States.

1. Background

The history of noncitizen service has corresponded roughly to the nation's history of immigration and naturalization policy. Over the course of more than two centuries, the relationship of citizenship for service has endured, with enlistment acting as both an opportunity and an obligation.¹⁹² Military service has offered immigrants in the U.S. a way of being assimilated into American culture and society. At the same time, it has provided the country with a way to meet its military manpower needs, especially during times of crisis.

The two largest source countries for immigrants to the United States today are Mexico and the Philippines. These two countries are also the largest resource for noncitizen military members, with Latin America and the Caribbean

¹⁹⁰ Remark made by an officer in 1873. In 1883, the USS Ashuelot was sunk in the China Sea. It was discovered that 92 of the 111 crew members were foreign born. Source: James H. Hayes, "The Evolution of Armed Forces Enlisted Personnel Management Policies: Executive Summary," N-1893-AF, The Rand Corporation, July 1982: 75.

¹⁹¹ In 1997, it was reported that over 20 percent of all Medal of Honor recipients have been immigrants, and immigrant medal recipients have served in every war since the medal was inaugurated. Source: American Immigration Law Foundation, *Immigration Policy Report: Immigrants Active and Honored in the Armed Forces*, http://www.aifl.org/ipc/policy_reports_1997_pr9731.htm, accessed January 2004.

¹⁹² James B. Jacobs, and Leslie Anne Hayes, "Aliens in the U.S. Armed Forces," 199.

contributing the greatest number of immigrants from any one region of the world.¹⁹³ As of September 2003, noncitizens comprised more than 2 percent, or nearly 33,000, of the U.S. military's active-duty enlisted force.¹⁹⁴

Military enlistment may provide noncitizens with opportunities to improve their economic positions and gain the job training and experience they value so highly. Economic evidence suggests the difference in wages between immigrants and native-born individuals does not decrease measurably during the course of immigrants' working lives.¹⁹⁵ In addition, the "sheepskin effect" of a high school diploma is weaker for immigrants than for citizens. Although foreign-born individuals have roughly the same rates of college graduation and workforce participation as do U.S.-born citizens, they have a higher probability of working in less desirable occupations and earning lower salaries.¹⁹⁶ All these economic factors may make military service a desirable option for young immigrants who seek stable employment with equitable pay and benefits.

2. Interviews with Enlistees

Interviews were conducted with ten enlistees who entered the military as noncitizens to gain a deeper understanding of the individuals who currently serve as noncitizen enlistees. The overall impression gained from these interviews is that each of the enlistees felt his or her military service had been a worthwhile endeavor. Since noncitizens are restricted to occupational specialties that do not require security clearances, several of the enlistees were initially unable to serve in their occupational areas of choice. However, all the interviewees believed their training and experiences were meaningful. Most of the individuals cited job stability and/or training as the prevailing reason for enlisting. A few enlistees

¹⁹³ Calculations are based on data provided by the Defense Manpower Data Center (DMDC), Monterey, California, Fiscal Year 1990-1998 enlistee cohorts, and on DMDC's "Non-U.S. Citizens on Active Duty as of February 2003."

¹⁹⁴ Calculations are based on data provided by the Defense Manpower Data Center, Monterey, California, "Citizenship Status as of September 2003."

¹⁹⁵ George J. Borjas, "The Economic Progress of Immigrants," in *Issues in the Economics of Immigration*, ed. George J. Borjas, 5 (Chicago: The University of Chicago Press, 2000).

¹⁹⁶ Ruben G. Rumbaut, "Origins and Destinies: Immigration to the United States Since World War II," 612.

mentioned educational benefits and the opportunity for adventure as motivations. Only two interviewees specified eligibility for expedited citizenship as an important consideration.

3. Statistical Analyses

To examine objectively the performance of noncitizen enlistees, statistical analyses of three specific measures of success were performed on enlisted cohort data for Fiscal Years 1990 – 1998.¹⁹⁷ The predicted rates of first-term attrition, retention beyond the first-term of enlistment, and promotion to E-4 were determined for each of the four services. Noncitizens were found to have significantly lower predicted first-term attrition rates than do citizens in the enlisted force. Noncitizens also tend to have significantly higher estimated rates of retention beyond the first-term of enlistment and higher rates of promotion to the E-4 pay-grade than do citizen enlistees.

B. CONCLUSIONS

Noncitizen enlistees have provided important service to the U.S. throughout its history, and especially during wartime. In this respect, noncitizens are not unlike other minority groups that have served in the military throughout U.S. history. They, like African-Americans who served before the military was integrated and women who served in limited capacities before warfare specialties became more widely available to them, provide a beneficial source of manpower to assist the military on an as-needed basis. In exchange for their service, noncitizens in the armed forces have been eligible for naturalization more quickly than have civilian immigrants throughout history. The concept of citizenship-for-service is a well-established precedent by which immigrants have gained political and social legitimacy.¹⁹⁸

In addition to the promise of citizenship, the motivations that cause immigrants to enlist also drive these individuals to succeed in the military. Their success may be because they have more to gain by enlisting than do individuals born in the U.S. If they succeed, they stand the chance to gain economic

¹⁹⁷ Fiscal Years 1996-1998 enlistee cohort data was used in the logit regression analysis of predicted promotion to E-4.

¹⁹⁸ James B. Jacobs, and Leslie Anne Hayes, "Aliens in the U.S. Armed Forces," 201.

benefits that are in many cases more valuable to them than to their citizen counterparts. They may also achieve the non-economic benefit of assimilation into the fabric of society. Immigrant enlistees also have more to lose from unsuccessful enlistments, as their prospects for employment in the civilian sector are less appealing than the prospects of U.S.-born enlistees. In addition, a less-than-honorable discharge may worsen their employment prospects even further, and may limit their future prospects for naturalization.

The results of the statistical analyses presented in this thesis suggest that noncitizens are largely successful, productive members of the armed forces who offer a valuable source of manpower to the military. From the military's perspective, noncitizens provide a ready source of high-performing manpower. They also fill important roles as influencers for the next generation of youth, as the noncitizen enlistees of today will be the parents, relatives, and counselors of tomorrow.

C. RECOMMENDATIONS

1. Policies

Based on the data obtained from the Defense Manpower Data Center, information on noncitizen enlistees' reported countries of origin is missing for a large percentage (over 31 percent) of noncitizens in the military.¹⁹⁹ Therefore, recruiting commands for all four services should consider adding source country as a mandatory field in the administrative processing of noncitizen recruits. This will allow for the more accurate tracking of information related to the performance of noncitizens.

As noncitizen enlistees are motivated to serve and perform at significantly higher levels than do citizen enlistees, it may be worthwhile for all branches of the service to provide to this group more information on enlistment opportunities. While the Filipino community has a strong network of active-duty and retired military members who may offer advice to young individuals about enlistment options, most other immigrant ethnic communities do not have as strong a

¹⁹⁹ Defense Manpower Data Center, Monterey, California, "Non-U.S. Citizens on Active Duty as of February 2003."

linkage to the U.S. military. Thus, supplying bilingual recruiting materials for relatives and friends of potential noncitizen recruits should be considered. The provision of additional knowledge about the military may allow both enlistees and members of their support network to feel more confident about the enlistment decision. It will also facilitate the spread of information about military opportunities throughout the community.

Since the ceiling on noncitizen enlistments is driven by security clearance requirements and there is a large potential pool of noncitizen recruits living in the United States, it may be beneficial to determine if any billets that are presently coded for security clearances may be declassified. Nearly 289,000 documented immigrants under the age of 21 were admitted to the U.S. in the year 2002, with more than 100,000 of them between 16 and 20 years of age.²⁰⁰

Another policy consideration could be the implementation of an immigration quota for qualified individuals who would agree to serve in the military for a specified period of time in exchange for citizenship.²⁰¹ A program such as this could be modeled after the Philippines Enlistment Program that existed during the latter half of the twentieth century. The Filipino enlistees who served in the U.S. Navy as participants in this program were highly successful,²⁰² and are now important influencers of today's youth. A separate but related recommendation is to consider offering highly qualified immigrant recruits occupational specialty guarantees. Once the enlistee is naturalized, he or she would be guaranteed authorization to transfer into the desired career field.

A last policy recommendation is to offer noncitizens unique reenlistment incentives. The provision of expedited Permanent Resident Status for family members might be offered to immigrant service members who agree to continue

²⁰⁰ U.S. Citizenship and Immigration Services, <http://uscis.gov/graphics/shared/aboutus/statistics/IMM02yrbk/IMM2002.pdf>, accessed January 2004.

²⁰¹ James B. Jacobs and Leslie Anne Hayes, "Aliens in the U.S. Armed Forces," 201.

²⁰² Luisito G. Maligat, "Study of the U.S. Navy's Philippines Enlistment Program, 1981-1991," Master's Thesis, Naval Postgraduate School, 2000, v.

on active duty.²⁰³ Such incentives could be extremely valuable to noncitizen service members, many of whom face waits in excess of ten years before family members can obtain green cards.

2. Future Research

Areas for further research could include qualitative and statistical analyses of specific ethnic categories of interest within the population of noncitizen enlistees, and within the civilian youth population at-large. Researchers may focus on the largest immigrant ethnic group in the U.S. today: Latinos. In the year 2000, more than 40 percent of Latinos in the United States were foreign-born, and nearly 75 percent of these individuals were noncitizens.²⁰⁴ A group of particular interest here is Mexicans, as they account for the largest number of noncitizen recruits.²⁰⁵

D. FINAL THOUGHT

The sentiments expressed by two recently naturalized enlistees from Haiti offer some insight into the motivations of noncitizen service members, and reflect the citizenship-for-service agreement that has been a part of military tradition since the nation's founding. A Navy petty officer who was interviewed at her naturalization ceremony in January 2004 remarked: "I'm feeling great. I've done something for America, and they're doing something back to me."²⁰⁶ An Army specialist who took part in a separate naturalization ceremony in March 2004 said the following when asked about his enlistment decision: "I believe in freedom. . . . America is a country that has an open door to the world, and it is a privilege for me to be here to serve."²⁰⁷

²⁰³ Allen S. Kong, "Manning the Force Through Immigration: Making the American Dream Work for the Armed Forces," U.S. Army War College Strategy Research Project (Carlisle Barracks, PA: U.S. Army War College, 2001), 9-10.

²⁰⁴ Anita U. Hattiangadi, Gary Lee and Aline O. Quester, "Recruiting Hispanics: The Marine Corps Experience Final Report", Center for Naval Analyses, January 2004, 16.

²⁰⁵ This statement is based on data for Fiscal Year 1990-1998 enlisted cohorts, provided by Defense Manpower Data Center, Monterey, California.

²⁰⁶ Carrie Kahn, "Analysis: Marines and Sailors Serving in the U.S. Military Become U.S. Citizens," *Weekend Edition*, National Public Radio, February 1, 2004.

²⁰⁷ Associated Press, "U.S. Soldiers Take Oath of Citizenship," *Dallas Morning News*, March 2, 2004.

**APPENDIX A. NON-U.S. CITIZENS ON ACTIVE DUTY AS OF
FEBRUARY 2003²⁰⁸**

Reported Country of Origin	Enlistees
Afghanistan	28
Albania	26
Algeria	7
American Samoa	16
Andorra	3
Angola	5
Anguilla	1
Antigua/Barbuda	71
Argentina	42
Armenia	6
Aruba	6
Ashmore and Cartier Islands	1
Australia	30
Austria	7
Azerbaijan	1
Bahamas	67
Bahrain	3
Bangladesh	45
Barbados	114
Belarus	6
Belgium	24
Belize	132
Benin	6
Bermuda	10
Bolivia	84
Bosnia and Herzegovina	20
Botswana	2
Bouvet Island	2
Brazil	105
British Indian Ocean Territories	2
British Virgin Islands	15
Bulgaria	20
Burkina	1
Burma	22
Burundi	1
Cambodia (Kampuchea)	149
Cameroon	56

²⁰⁸ Partial reproduction of table provided by Defense Manpower Data Center, Monterey, California.

Reported Country of Origin	Enlistees
Canada	283
Canton and Enderbury Islands	1
Cape Verde	27
Cayman Islands	1
Central African Republic	1
Chad	5
Chile	45
China, Peoples Republic of	219
Cocos Islands (Keeling)	4
Colombia	624
Comorro Island	4
Congo	7
Coral Sea Island	10
Costa Rica	71
Croatia	4
Cuba	294
Cyprus	2
Czech Republic	1
Czechoslovakia	9
Denmark	4
Djibouti	2
Dominica and Winward Islands	84
Dominican Republic	916
Ecuador	396
Egypt	34
El Salvador	834
Equatorial Guinea	2
Eritrea	2
Estonia	29
Ethiopia	67
Europa Island	4
Federation of States of Micronesia	16
Fiji	51
Finland	2
France	23
French Guiana	2
Gabon	3
Gambia	14
Georgia	10
Germany	124
Germany, Berlin	13
Germany, Democratic Republic	3
Germany, Federal Republic of	108
Ghana	275

Reported Country of Origin	Enlistees
Greece	16
Grenada	86
Guadeloupe	5
Guam	8
Guatemala	382
Guernsey	1
Guinea	10
Guinea – Bissau	15
Guyana	419
Haiti	737
Honduras	318
Hong Kong	26
Hungary	27
Iceland	3
India	141
Indonesia	25
Iran	24
Iraq	7
Iraq / Saudi Arabia Neutral Zone	1
Ireland	50
Israel	8
Italy	25
Ivory Coast	32
Jamaica	1,887
Japan	87
Johnston Atoll	5
Jordan	7
Kazakhstan	5
Kenya	100
Kingman Reef	4
Kiribati	46
Korea, North	67
Korea, South	527
Kuwait	12
Kyrgyzstan	3
Laos	146
Latvia	2
Lebanon	12
Lesotho	1
Liberia	164
Libya	2
Liechtenstein	2
Lithuania	8
Luxembourg	2

Reported Country of Origin	Enlistees
Macao	6
Macedonia	2
Madagascar	3
Malawi	1
Malaysia	10
Maldives	1
Mali	5
Martinique	3
Mauritania	2
Mexico	4,005
Moldova	5
Montserrat	13
Morocco	38
Nauru	1
Navassa Island	7
Nepal	8
Netherlands	19
Netherlands Antilles	12
New Caledonia	1
New Zealand	9
Nicaragua	465
Niger	24
Nigeria	342
Northern Marianas	1
Norway	5
Pakistan	54
Panama (Includes Canal Zone)	294
Papua New Guinea	1
Paraguay	14
Peru	499
Philippines	5,562
Pitcairn Island	1
Poland	189
Portugal	47
Portuguese Timor	2
Puerto Rico	25
Qatar	2
Romania	90
Russia	85
Rwanda	2
Sao Tome and Principe	1
Saudi Arabia	17
Senegal	36
Serbia	1

Reported Country of Origin	Enlistees
Seychelles	2
Sierra Leone	78
Singapore	6
Slovakia	6
Slovenia	2
Somalia	12
South Africa	44
South Georgia / Sandwich Island	4
Spain	39
Sri Lanka	9
St. Christopher / Nevis / St. Kitts	50
St. Lucia	83
St. Vincent and the Grenadines	56
Sudan	11
Suriname	8
Svalbard	1
Sweden	11
Switzerland	3
Syria	3
Taiwan	40
Tajikistan	2
Tanzania	7
Thailand	302
Togo	22
Tonga	12
Trinidad and Tobago	624
Trust Territories of the Pacific	67
Tunisia	5
Turkey	23
Turks and Caicos Islands	1
U.S. Miscellaneous Pacific Islands	6
Uganda	15
Ukraine	61
United Arab Emirates	2
United Kingdom	250
Uruguay	7
USSR	39
Uzbekistan	5
Vatican City	4
Venezuela	130
Vietnam	371
Vietnam, North	2
Vietnam, South	5
Virgin Islands	7

Reported Country of Origin	Enlistees
Western Sahara	11
Western Samoa	10
Yugoslavia	14
Zaire, Republic of	13
Zambia	2
Zimbabwe	8
Unknown	11,609
TOTAL	37,235

APPENDIX B. COMPARISON OF THE NATURALIZATION TIMELINE FOR MILITARY ENLISTEES AND CIVILIAN IMMIGRANTS

The minimum time required for naturalization varies by city or region of residence. Individuals who apply for citizenship must have U.S. Permanent Resident Status (PRS) for a minimum of five years.²⁰⁹ Once an individual has petitioned for citizenship, the time required for administrative processing of the application varies by processing city. Based on estimates calculated on February 3, 2004, the minimum time for processing at any site is 1.5 years. Therefore, the minimum wait time for naturalization as of the February 2004 date is 6.5 years.²¹⁰

In contrast, military members who petition for citizenship are not required to reside in the United States for any minimum period of time.²¹¹ Under the provisions of Executive Order 13269,²¹² and pursuant to Title XVII of Public Law 108-136 (2003), the Immigration and Naturalization Act is amended:

To reduce from three years to one the required period of U.S. military service before eligibility for naturalization for U.S. citizenship....Such citizenship (may be) revoked for separation from military service under other than honorable conditions, up until the time the person has served honorably for an aggregate five-year period.²¹³

²⁰⁹ Once an individual has attained PRS, he or she must live in the United States for a minimum of 2.5 of the 5 years required for naturalization eligibility. An exception applies to spouses of U.S. citizens. They are required to reside in the United States a minimum of 1.5 of 3 years before they may apply for citizenship.

²¹⁰ The current minimum wait time for spouses of U.S. citizens is 4.5 years: 3 years of permanent residency, plus 1.5 years for administrative processing.

²¹¹ United States Citizenship and Immigration Services, <http://uscis.gov/graphics/services/natz/Special.htm#other>, accessed January 2004.

²¹² United States Bureau of Citizenship and Immigration Services, <http://www.bcis.gov/graphics/lawsregs/handbook/ExecOrd13269.pdf>, accessed September 2003.

²¹³ The Library of Congress, Legislative Information, <http://thomas.loc.gov/bss/d108/d108laws.html>, accessed February 2004.

These provisions apply for individuals serving on active duty or as selected reservists. Additionally, Section 1704 of the law provides for the expeditious processing of posthumous citizenship.²¹⁴

Military members who apply for citizenship may be naturalized in as little as three months.²¹⁵ Thus, in the case of a legal immigrant who attains PRS (green card) upon, or shortly after his arrival in the United States, the waiting period for naturalization could be significantly reduced if she or he enlists in the armed forces. For example, an individual who receives a green card when he arrives in the U.S., then immediately enlists, could hypothetically attain citizenship in as little as fifteen months. This would be nearly four years before her or his civilian counterpart would be eligible to apply for naturalization, and more than five years before the civilian could attain citizenship.²¹⁶

²¹⁴ Ibid.

²¹⁵ Tina Susman, "A Citizenship Struggle: Deployed Troops Often Miss Alerts, Deadlines in Their Quest," *Long Island Newsday*, January 30, 2004.

²¹⁶ United States Citizenship and Immigration Services, <http://uscis.gov/graphics/formsfee/forms/files/N-400-non.pdf>, accessed February 2004.

APPENDIX C. OLD-TO- NEW DOD OCCUPATION CODE CONVERSION TABLE²¹⁷

EO TYPE	OLD DOD CODE	NEW DOD CODE	DOD CODE TITLE
E	0	10	Infantry, Gun Crews, and Seamanship Specialists
E	01	101	Infantry
E	010	101000	Infantry, General
E	011	101100	Special Forces
E	012	101200	Military Training Instructor
E	02	102	Armor and Amphibious
E	020	102000	Armor and Amphibious, General
E	03	103	Combat Engineering
E	030	103000	Combat Engineering, General
E	04	104	Artillery/Gunnery, Rockets, and Missiles
E	041	104100	Artillery and Gunnery
E	042	104200	Rocket Artillery
E	043	104300	Missile Artillery, Operating Crew
E	05	105	Air Crew
E	050	105000	Air Crew, General
E	051	105100	Pilots and Navigators
E	06	106	Seamanship
E	060	106000	Boatswains
E	061	106100	Navigators
E	062	106200	Small Boat Operators
E	063	106300	Seamanship, General
E	07	107	Installation Security
E	070	107000	Security Guards
E	1	11	Electronic Equipment Repairers
E	10	110	Radio/Radar
E	100	110000	Radio/Radar, General
E	101	110100	Communications Radio
E	102	110200	Navigation, Communication, and Countermeasure, N.E.C.
E	103	110300	Air Traffic Control Radar
E	104	110400	Surveillance/Target Acquisition and Tracking Radar
E	11	111	Fire Control Electronic Systems (Non-Missile)
E	111	111100	Bomb-Navigation
E	112	111200	Airborne Fire Control
E	113	111300	Shipboard and Other Fire Control
E	12	112	Missile Guidance, Control, and Checkout
E	121	112100	Missile Guidance and Control
E	122	112200	Missile Checkout Equipment, Test Equipment, and Calibration
E	123	112300	Torpedo Repair
E	13	113	Sonar Equipment
E	130	113000	Sonar, General
E	14	114	Nuclear Weapons Equipment
E	140	114000	Nuclear Weapons Equipment Repair, General
E	15	115	ADP Computers
E	150	115000	ADP Computers, General

²¹⁷ United States Department of Defense Occupational Database Manual, DoD 1312.1-1, <http://www.odm.asmr.com/ode>, accessed January 2004.

EO TYPE	OLD DOD CODE	NEW DOD CODE	DOD CODE TITLE	
E	16	116	Teletype and Cryptographic Equipment	
E	160	116000	Teletype and Cryptographic Equipment, General	
E	19	119	Other Electronic Equipment	
E	191	119100	Training Devices	
E	193	119300	Shipboard Inertial Navigation Systems	
E	198	119800	Electronic Instruments, N.E.C.	
E	2	12	Communications and Intelligence Specialists	
E	20	120	Radio and Radio Code	
E	201	120100	Radio Code	
E	202	120200	Non-Code Radio	
E	203	120300	Non-Radio Communications (Visual)	
E	21	121	Sonar	
E	210	121000	Sonar Operator, General	
E	22	122	Radar and Air Traffic Control	
E	221	122100	Radar	
E	222	122200	Air Traffic Control	
E	23	123	Signal Intelligence/Electronic Warfare	
E	230	123000	Signal Intelligence/Electronic Warfare, General	
E	231	123100	Intercept Operators (Code and Non-Code)	
E	232	123200	Analysis	
E	233	123300	Electronic Countermeasures	
E	24	124	Intelligence	
E	241	124100	Language Interrogation/Interpretation	
E	242	124200	Image Interpretation	
E	243	124300	Operational Intelligence	
E	244	124400	Counterintelligence	
E	25	125	Combat Operations Control	
E	250	125000	Combat Operations Control, General	
E	26	126	Communications Center Operations	
E	260	126000	Communications Center Operations, General	
E	3	13	Health Care Specialists	
E	30	130	Medical Care	
E	300	130000	Medical Care and Treatment, General	
E	301	130100	Surgery	
E	302	130200	Behavioral Sciences	
E	303	130300	Therapy	
E	304	130400	Orthopedic	
E	305	130500	Aerospace and Underseas Medicine	
E	31	131	Ancillary Medical Support	
E	311	131100	Biomedical Laboratory Services	
E	312	131200	Pharmacy	
E	313	131300	Radiology	
E	32	132	Biomedical Sciences and Allied Health	
E	321	132100	Veterinary Medicine	

EO TYPE	OLD DOD CODE	NEW DOD CODE	DOD CODE TITLE
E	322	132200	Environmental Health Services
E	323	132300	Ophthalmology/Optometry
E	324	132400	Physiology
E	325	132500	Diet Therapy
E	326	132600	Biomedical Science and Allied Health
E	327	132700	Other Biomedical Science and Allied Health
E	33	133	Dental Care
E	330	133000	Dental Care, General
E	331	133100	Dental Laboratory
E	34	134	Medical Administration and Logistics
E	340	134000	Medical Administration
E	341	134100	Medical Logistics
E	4	14	Other Technical and Allied Specialists
E	40	140	Photography
E	400	140000	Photography, General
E	41	141	Mapping, Surveying, Drafting, and Illustrating
E	411	141100	Mapping
E	412	141200	Surveying
E	413	141300	Drafting
E	414	141400	Illustrating
E	42	142	Weather
E	420	142000	Weather, General
E	43	143	Ordnance Disposal and Diving
E	431	143100	EOD/UDT
E	433	143300	Divers
E	45	145	Musicians
E	450	145000	Musicians, General
E	49	149	Technical Specialists, NEC
E	491	149100	Physical Science Laboratory
E	492	149200	Memorial Activities and Embalming
E	493	149300	Safety
E	494	149400	Nuclear, Biological, and Chemical Warfare Specialists
E	495	149500	Firefighting and damage Control
E	496	149600	Other Technical Specialists and Assistants
E	5	15	Functional Support and Administration
E	50	150	Personnel
E	500	150000	Personnel, General
E	501	150100	Recruiting and Counseling
E	51	151	Administration
E	510	151000	Administration, General
E	511	151100	Stenography
E	512	151200	Legal
E	52	152	Clerical/Personnel
E	520	152000	Combined Personnel and Administration, General

EO TYPE	OLD DOD CODE	NEW DOD CODE	DOD CODE TITLE	
E	521	152100	First Sergeants, Sergeants Major, and Leading Chiefs	
E	53	153	Data Processing	
E	531	153100	Operators/Analysts	
E	532	153200	Programmers	
E	54	154	Accounting, Finance and Disbursing	
E	541	154100	Auditing and Accounting	
E	542	154200	Disbursing	
E	55	155	Other Functional Support	
E	551	155100	Supply Administration	
E	552	155200	Unit Supply	
E	553	155300	Transportation	
E	554	155400	Postal	
E	555	155500	Aviation Maintenance Records and Reports	
E	556	155600	Flight Operations	
E	557	155700	Production and Quality Control	
E	558	155800	Functional Analysis	
E	56	156	Religious, Morale and Welfare	
E	561	156100	Chaplain's Assistants	
E	562	156200	Recreation and Welfare	
E	57	157	Information and Education	
E	570	157000	Information and Education, General	
E	6	16	Electrical/Mechanical Equipment Repairers	
E	60	160	Aircraft and Aircraft Related	
E	600	160000	Aircraft, General	
E	601	160100	Aircraft Engines	
E	602	160200	Aircraft Accessories	
E	603	160300	Aircraft Structures	
E	604	160400	Aircraft Launch Equipment	
E	61	161	Automotive	
E	610	161000	Automotive, General	
E	611	161100	Tracked Vehicles	
E	612	161200	Construction Equipment	
E	62	162	Wire Communications	
E	620	162000	Wire Communications, General	
E	621	162100	Lineman	
E	622	162200	Central Office	
E	623	162300	Interior Communications	
E	63	163	Missile Mechanical and Electrical	
E	631	163100	Missile Engine	
E	632	163200	Missile Mechanic	
E	633	163300	Missile Launch and Support Facilities	
E	64	164	Armament and Munitions	
E	640	164000	Armament Maintenance, General	
E	641	164100	Small Arms Repair	

EO TYPE	OLD DOD CODE	NEW DOD CODE	DOD CODE TITLE	
E	642	164200	Artillery Repair	
E	643	164300	Turret Repair	
E	644	164400	Nuclear Weapons Maintenance and Assembly	
E	645	164500	Ammunition Repair	
E	646	164600	Aviation Ordnance	
E	647	164700	Mines and Degaussing	
E	65	165	Shipboard Propulsion	
E	651	165100	Main Propulsion	
E	652	165200	Auxiliaries	
E	66	166	Power Generating Equipment	
E	661	166100	Nuclear Power	
E	662	166200	Electric Power	
E	67	167	Precision Equipment	
E	670	167000	Precision Equipment, General	
E	69	169	Other Mechanical and Electrical Equipment	
E	690	169000	Other Mechanical and Electrical Equipment, General	
E	7	17	Craftworkers	
E	70	170	Metalworking	
E	700	170000	Metalworking, General	
E	701	170100	Welding	
E	702	170200	Machinists	
E	703	170300	Sheetmetal	
E	704	170400	Metal Body Repair	
E	71	171	Construction	
E	710	171000	Construction, General	
E	711	171100	Steelworking	
E	712	171200	Woodworking	
E	713	171300	Construction Equipment Operation	
E	72	172	Utilities	
E	720	172000	Utilities, General	
E	721	172100	Electricians	
E	74	174	Lithography	
E	740	174000	Lithography, General	
E	75	175	Industrial Gas and Fuel Production	
E	750	175000	Industrial Gas and Fuel Production, General	
E	76	176	Fabric, Leather, and Rubber	
E	760	176000	Fabric, Leather, and Rubber, General	
E	79	179	Other Craftworkers, N.E.C.	
E	790	179000	Other Craftworkers, N.E.C., General	
E	8	18	Service and Supply Handlers	
E	80	180	Food Service	
E	800	180000	Food Service, General	
E	801	180100	Stewards and Enlisted Aides	
E	81	181	Motor Transport	

EO TYPE	OLD DOD CODE	NEW DOD CODE	DOD CODE TITLE	
E	811	181100	Motor Vehicle Operators	
E	812	181200	Railway Operators	
E	82	182	Material Receipt, Storage, and Issue	
E	821	182100	Missile Fuel and Petroleum	
E	822	182200	Warehousing and Equipment Handling	
E	823	182300	Sales Store	
E	83	183	Law Enforcement	
E	830	183000	Law Enforcement, General	
E	831	183100	Corrections	
E	832	183200	Investigations	
E	84	184	Personal Service	
E	840	184000	Laundry and Personal Service, General	
E	85	185	Auxiliary Labor	
E	850	185000	Auxiliary Labor, General	
E	86	186	Forward Area Equipment Support	
E	860	186000	Forward Area Equipment Support, General	
E	87	187	Other Services, N.E.C.	
E	870	187000	Other Services, General	
E	9	19	Non-Occupational	
E	90	190	Patients and Prisoners	
E	901	190100	Patients	
E	902	190200	Prisoners	
E	91	191	Officer Candidates and Students	
E	911	191100	Cadets and Other Officer Candidates	
E	912	191200	Students	
E	92	192	Undesignated Occupations	
E	920	192000	Undesignated Occupations, General	
E	95	195	Not Occupationally Qualified	
E	950	195000	Not Occupationally Qualified, General	
O	1	21	General Officers and Executives, N.E.C.	
O	1A	210100	General and Flag	
O	1B	210200	Executives, N.E.C.	
O	2	22	Tactical Operations Officers	
O	2A	220100	Fixed-Wing Fighter and Bomber Pilots	
O	2B	220200	Other Fixed-Wing Pilots	
O	2C	220300	Helicopter Pilots	
O	2D	220400	Aircraft Crews	
O	2E	220500	Ground and Naval Arms	
O	2F	220600	Missiles	
O	2G	220700	Operations Staff	
O	2H	220800	Civilian Pilots	
O	3	23	Intelligence Officers	
O	3A	230100	Intelligence, General	
O	3B	230200	Communications Intelligence	

APPENDIX D. NONCITIZEN DATA

Table 17. Noncitizen Data for All Services

N = 70,054

RACE-ETHNICITY	PERCENTAGE	NUMBER
BLACK	14.6	10,228
LATINO	24.4	17,093
NATAM	1.9	1,331
API	16.2	11,349
OTHER/UNKNOWN	42.9	30,053
ETHNICITY	PERCENTAGE	NUMBER
MEXICAN	10.0	7,005
ALL OTHER LATINO	12.9	9,037
NATIVE AMERICAN	1.9	1,331
FILIPINO	7.6	5,324
PACIFIC ISLANDER	1.2	841
ALL OTHER ASIAN	7.3	5,114
OTHER	60.3	42,243
UNKNOWN	0.3	210

Table 18. Noncitizen Data for the Army

N = 6,383

RACE-ETHNICITY	PERCENTAGE	NUMBER
BLACK	18.8	1,200
LATINO	21.5	1,372
NATAM	1.0	64
API	12.0	766
OTHER/UNKNOWN	46.7	2,981
ETHNICITY	PERCENTAGE	NUMBER
MEXICAN	8.7	555
ALL OTHER LATINO	12.9	823
NATIVE AMERICAN	1.0	64
FILIPINO	3.8	243
PACIFIC ISLANDER	2.1	134
ALL OTHER ASIAN	5.7	364
OTHER	65.7	4,194
UNKNOWN	0.2	13

Table 19. Noncitizen Data for the Navy

N = 9,729

RACE-ETHNICITY	PERCENTAGE	NUMBER
BLACK	14.3	1,391
LATINO	21.7	2,111
NATAM	3.3	321
API	21.0	2,043
OTHER/UNKNOWN	39.7	3,862
ETHNICITY	PERCENTAGE	NUMBER
MEXICAN	8.6	837
ALL OTHER LATINO	13.2	1,284
NATIVE AMERICAN	3.3	321
FILIPINO	13.2	1,284
PACIFIC ISLANDER	1.1	107
ALL OTHER ASIAN	5.7	555
OTHER	54.6	5,312
UNKNOWN	0.3	29

Table 20. Noncitizen Data for the Air Force

N = 3,435

RACE-ETHNICITY	PERCENTAGE	NUMBER
BLACK	13.1	450
LATINO	14.2	488
NATAM	0.8	27
API	14.5	498
OTHER/UNKNOWN	57.4	1,972
ETHNICITY	PERCENTAGE	NUMBER
MEXICAN	5.6	192
ALL OTHER LATINO	8.6	295
NATIVE AMERICAN	0.7	24
FILIPINO	7.9	271
PACIFIC ISLANDER	0.8	27
ALL OTHER ASIAN	4.8	165
OTHER	71.0	2,439
UNKNOWN	0.4	14

Table 21. Noncitizen Data for the Marine Corps

N = 3,838

RACE-ETHNICITY	PERCENTAGE	NUMBER
BLACK	12.0	461
LATINO	34.6	1,328
NATAM	1.8	69
API	9.4	361
OTHER/UNKNOWN	42.2	1,620
ETHNICITY	PERCENTAGE	NUMBER
MEXICAN	18.6	714
ALL OTHER LATINO	16.0	614
NATIVE AMERICAN	1.8	69
FILIPINO	3.1	119
PACIFIC ISLANDER	0.6	23
ALL OTHER ASIAN	5.0	192
OTHER	54.6	2,096
UNKNOWN	0.3	12

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APPENDIX E. ANALYSIS OF MAXIMUM LIKELIHOOD ESTIMATES FOR ATTRITION MODELS

Table 22. Logit Regression Results for Army Attrition Model

Parameter	DF	Standard Estimate	Error	Chi-Square	Pr > ChiSq
Intercept	1	-0.6656	0.0450	219.0676	<.0001
NONCITIZEN	1	-0.5649	0.0303	346.5291	<.0001
AFQTPERC	1	-0.00785	0.000272	836.0534	<.0001
FEMALE	1	0.5996	0.0113	2821.3852	<.0001
SOMCOLL	1	-0.2281	0.0458	24.8070	<.0001
COLLGRAD	1	-0.4186	0.0293	204.5911	<.0001
ALTGRAD	1	0.6874	0.0202	1162.6848	<.0001
BLACK	1	-0.3369	0.0117	827.9596	<.0001
LATINO	1	-0.3795	0.0195	380.5145	<.0001
NATAM	1	0.0137	0.0530	0.0670	0.7958
API	1	-0.5600	0.0366	234.2910	<.0001
UNKNRACE	1	-0.3408	0.0517	43.4003	<.0001
MARRIED	1	-0.7998	0.0130	3802.8888	<.0001
DEPENDENT	1	-0.2867	0.00645	1977.4781	<.0001
MORWAIVER	1	0.1430	0.0157	83.3636	<.0001
AGE	1	0.0725	0.00205	1250.8236	<.0001
MONDEP	1	-0.0371	0.00152	591.7880	<.0001
N=205,905 R²= 0.1064,-2 Log L = 305047.03 P=<0.0001					

Table 23. Logit Regression Results for Navy Attrition Model

Parameter	DF	Standard Estimate	Error	Chi-Square	Pr > ChiSq
Intercept	1	-0.1836	0.0378	23.6416	<.0001
NONCITIZEN	1	-0.6838	0.0254	727.5603	<.0001
AFQTPERC	1	-0.00896	0.000201	1989.7546	<.0001
FEMALE	1	0.2336	0.0102	523.6605	<.0001
SOMCOLL	1	-0.3831	0.0468	66.8902	<.0001
COLLGRAD	1	-0.2932	0.0356	67.8889	<.0001
ALTGRAD	1	0.6764	0.0142	2268.3555	<.0001
BLACK	1	-0.1096	0.0103	114.2442	<.0001
LATINO	1	-0.1641	0.0133	152.2637	<.0001
NATAM	1	0.0425	0.0348	1.4949	0.2215
API	1	-0.6387	0.0254	632.1705	<.0001
UNKNRACE	1	-0.1603	0.0592	7.3289	0.0068
MARRIED	1	-0.5771	0.0122	2253.2674	<.0001
DEPENDENT	1	-0.5438	0.00670	6584.8187	<.0001
MORWAIVER	1	0.2875	0.00810	1259.7997	<.0001
AGE	1	0.0431	0.00175	603.7772	<.0001
MONDEP	1	-0.0471	0.00106	1971.4056	<.0001
		N=294,808 R²= 0.1263, -2 Log L = 487746.72 P=<0.0001			

Table 24. Logit Regression Results for Air Force Attrition Model

Parameter	DF	Standard Estimate	Error	Chi-Square	Pr > ChiSq
Intercept	1	0.2764	0.0530	27.1919	<.0001
NONCITIZEN	1	-0.4217	0.0406	107.7746	<.0001
AFQTPERC	1	-0.0126	0.000289	1909.0405	<.0001
FEMALE	1	0.1990	0.0106	353.6567	<.0001
SOMCOLL	1	-0.2120	0.0573	13.6715	0.0002
COLLGRAD	1	0.2191	0.0352	38.7061	<.0001
ALTGRAD	1	0.4561	0.0385	140.3006	<.0001
BLACK	1	-0.2609	0.0135	372.8548	<.0001
LATINO	1	-0.4082	0.0227	324.3697	<.0001
NATAM	1	0.2440	0.0624	15.3158	<.0001
API	1	-0.5518	0.0342	260.7541	<.0001
UNKNRACE	1	-0.3355	0.0451	55.3277	<.0001
MARRIED	1	-0.3065	0.0132	541.3061	<.0001
DEPENDENT	1	-0.7391	0.00793	8685.8764	<.0001
MORWAIVER	1	0.1395	0.0135	107.3102	<.0001
AGE	1	0.0295	0.00252	137.2985	<.0001
MONDEP	1	0.2764	0.0530	27.1919	<.0001
N=202,064 R2= 0.1308, -2 Log L = 318591.44 P=<0.0001					

Table 25. Logit Regression Results for Marine Corps Attrition Model

Parameter	DF	Standard Estimate	Error	Chi-Square	Pr > ChiSq
Intercept	1	-1.1096	0.0628	312.5509	<.0001
NONCITIZEN	1	-0.5122	0.0301	289.0297	<.0001
AFQTPERC	1	-0.0111	0.000291	1460.6107	<.0001
FEMALE	1	0.7315	0.0199	1354.2693	<.0001
SOMCOLL	1	-0.2605	0.0945	7.5956	0.0059
COLLGRAD	1	-0.6115	0.0684	79.8864	<.0001
ALTGRAD	1	0.6400	0.0211	921.7491	<.0001
BLACK	1	0.0272	0.0143	3.6199	0.0571
LATINO	1	-0.3471	0.0178	380.2552	<.0001
NATAM	1	0.00596	0.0454	0.0173	0.8955
API	1	-0.4516	0.0422	114.5321	<.0001
UNKNRACE	1	-0.1880	0.0492	14.5968	0.0001
MARRIED	1	-0.9304	0.0173	2879.4008	<.0001
DEPENDENT	1	-0.4899	0.00937	2732.6065	<.0001
MORWAIVER	1	0.2235	0.00994	504.9356	<.0001
AGE	1	0.0908	0.00302	904.8827	<.0001
MONDEP	1	-0.0439	0.00133	1092.0356	<.0001
		N=191,924 R²= 0.1498, -2 Log L = 283473.81 P=<0.0001			

APPENDIX F. ANALYSIS OF MAXIMUM LIKELIHOOD ESTIMATES FOR RETENTION MODELS

Table 26. Logit Regression Results for Army Retention Model

Parameter	DF	Standard Estimate	Error	Chi-Square	Pr > ChiSq
Intercept	1	-0.4212	0.0637	43.7443	<.0001
NONCITIZEN	1	0.3341	0.0326	104.9146	<.0001
AFQTPERC	1	0.00350	0.000344	103.4964	<.0001
FEMALE	1	-0.3731	0.0152	602.3474	<.0001
SOMCOLL	1	0.0152	0.0559	0.0742	0.7854
COLLGRAD	1	0.0473	0.0358	1.7427	0.1868
ALTGRAD	1	-0.4576	0.0249	337.0854	<.0001
BLACK	1	0.4049	0.0142	809.4051	<.0001
LATINO	1	0.1917	0.0226	72.1069	<.0001
NATAM	1	0.0401	0.0677	0.3501	0.5540
API	1	0.3741	0.0413	82.2337	<.0001
UNKNRACE	1	0.3013	0.0583	26.6730	<.0001
AGE	1	-0.0711	0.00253	792.2603	<.0001
MONDEP	1	0.0328	0.00183	320.1829	<.0001
UNEMP	1	0.0738	0.00496	221.1955	<.0001
MARRIED	1	0.9455	0.0148	4093.4705	<.0001
DEPENDENT	1	0.4473	0.00706	4013.5198	<.0001
MORWAIVER	1	-0.0777	0.0196	15.7055	<.0001
MOS10	1	-0.2813	0.0186	228.0074	<.0001
MOS11	1	-0.2556	0.0229	125.0847	<.0001
MOS12	1	-0.3277	0.0209	245.2156	<.0001
MOS13	1	-0.1977	0.0229	74.4144	<.0001
MOS14	1	0.0446	0.0364	1.5014	0.2205
MOS16	1	-0.4059	0.0224	329.2117	<.0001
MOS17	1	-0.4862	0.0420	134.2976	<.0001
MOS18	1	-0.2242	0.0246	83.0070	<.0001
MOS19	1	-3.2248	0.0720	2007.1066	<.0001
N=205,905 R²= 0.1822, -2 Log L = 226320.82 P=<0.0001					

Table 27. Logit Regression Results for Navy Retention Model

Parameter	DF	Standard Estimate	Error	Chi-Square	Pr > ChiSq
Intercept	1	-0.9528	0.0535	317.2568	<.0001
NONCITIZEN	1	0.3994	0.0271	217.6117	<.0001
AFQTPERC	1	0.0141	0.000259	2979.1732	<.0001
FEMALE	1	-0.0801	0.0130	37.7941	<.0001
SOMCOLL	1	-0.00637	0.0514	0.0154	0.9013
COLLGRAD	1	-0.2218	0.0399	30.8578	<.0001
ALTGRAD	1	-0.3291	0.0187	309.9098	<.0001
BLACK	1	0.3745	0.0129	848.8202	<.0001
LATINO	1	0.0964	0.0162	35.3267	<.0001
NATAM	1	0.1423	0.0426	11.1819	0.0008
API	1	0.5964	0.0275	470.2358	<.0001
UNKNRACE	1	0.3506	0.0692	25.6782	<.0001
AGE	1	-0.0139	0.00217	41.1394	<.0001
MONDEP	1	0.0236	0.00134	309.4998	<.0001
UNEMP	1	0.000889	0.00394	0.0510	0.8214
MARRIED	1	0.2168	0.0137	251.9610	<.0001
DEPENDENT	1	0.5259	0.00694	5743.9251	<.0001
MORWAIVER	1	-0.1251	0.0101	151.9461	<.0001
MOS10	1	-0.9133	0.0215	1805.1387	<.0001
MOS11	1	0.0644	0.0187	11.8678	0.0006
MOS12	1	-0.2981	0.0198	227.6336	<.0001
MOS13	1	0.6667	0.0221	908.4047	<.0001
MOS14	1	0.4008	0.0487	67.7144	<.0001
MOS16	1	-0.2673	0.0170	247.3563	<.0001
MOS17	1	-0.0779	0.0226	11.8416	0.0006
MOS18	1	-0.2963	0.0252	137.7301	<.0001
MOS19	1	-3.7313	0.0341	11988.1393	<.0001
N=294,808 R2= 0.2768, -2 Log L = 380112.34 P=<0.0001					

Table 28. Logit Regression Results for Air Force Retention Model

Parameter	DF	Standard Estimate	Error	Chi-Square	Pr > ChiSq
Intercept	1	-0.2589	0.0680	14.4768	0.0001
NONCITIZEN	1	-0.0305	0.0414	0.5431	0.4611
AFQTPERC	1	-0.00036	0.000365	0.9980	0.3178
FEMALE	1	0.0608	0.0139	19.2631	<.0001
SOMCOLL	1	0.1069	0.0637	2.8130	0.0935
COLLGRAD	1	-0.1486	0.0445	11.1575	0.0008
ALTGRAD	1	-0.1072	0.0481	4.9625	0.0259
BLACK	1	0.3273	0.0157	436.5583	<.0001
LATINO	1	0.0636	0.0241	6.9491	0.0084
NATAM	1	-0.1091	0.0755	2.0867	0.1486
API	1	0.3390	0.0352	92.9828	<.0001
UNKNRACE	1	0.2868	0.0489	34.3969	<.0001
AGE	1	-0.0281	0.00295	90.5259	<.0001
MONDEP	1	0.0224	0.00174	165.2429	<.0001
UNEMP	1	0.1036	0.00477	470.8292	<.0001
MARRIED	1	-0.1259	0.0148	71.8732	<.0001
DEPENDENT	1	0.8222	0.00809	10321.7038	<.0001
MORWAIVER	1	-0.0196	0.0168	1.3511	0.2451
MOS10	1	-0.2736	0.0208	173.7672	<.0001
MOS11	1	-0.2167	0.0225	92.4791	<.0001
MOS12	1	0.0811	0.0241	11.3535	0.0008
MOS13	1	-0.2748	0.0209	172.5193	<.0001
MOS14	1	-0.3858	0.0279	191.1953	<.0001
MOS16	1	-0.2935	0.0173	287.2559	<.0001
MOS17	1	-0.4966	0.0266	347.7796	<.0001
MOS18	1	-0.6394	0.0228	787.3776	<.0001
MOS19	1	-3.7656	0.0404	8699.3717	<.0001
		N=202,064 R²= 0.2627, -2 Log L = 265743.19 P=<0.0001			

Table 29. Logit Regression Results for Marine Corps Retention Model

Parameter	DF	Standard Estimate	Error	Chi-Square	Pr > ChiSq
Intercept	1	-0.8682	0.0837	107.5731	<.0001
NONCITIZEN	1	0.2807	0.0303	85.5516	<.0001
AFQTPERC	1	0.00228	0.000371	37.7126	<.0001
FEMALE	1	-0.1355	0.0258	27.6633	<.0001
SOMCOLL	1	0.0122	0.1103	0.0123	0.9117
COLLGRAD	1	-0.2183	0.0843	6.7099	0.0096
ALTGRAD	1	-0.0277	0.0273	1.0311	0.3099
BLACK	1	0.3697	0.0172	459.2652	<.0001
LATINO	1	0.1265	0.0196	41.4998	<.0001
NATAM	1	0.0832	0.0578	2.0715	0.1501
API	1	0.3080	0.0455	45.7242	<.0001
UNKNRACE	1	0.2474	0.0563	19.3311	<.0001
AGE	1	-0.0284	0.00372	58.3129	<.0001
MONDEP	1	0.0166	0.00164	102.5123	<.0001
UNEMP	1	0.0473	0.00531	79.3972	<.0001
MARRIED	1	0.2801	0.0172	264.0860	<.0001
DEPENDENT	1	0.4177	0.00740	3185.2846	<.0001
MORWAIVER	1	-0.3092	0.0127	589.4596	<.0001
MOS10	1	-0.4548	0.0189	579.9281	<.0001
MOS11	1	0.6820	0.0395	298.6096	<.0001
MOS12	1	-0.0740	0.0259	8.1426	0.0043
MOS13	1	3.4859	0.3650	91.2016	<.0001
MOS14	1	0.1170	0.0399	8.5930	0.0034
MOS16	1	-0.1010	0.0220	21.1112	<.0001
MOS17	1	-0.4236	0.0369	132.0209	<.0001
MOS18	1	-0.4425	0.0212	434.7215	<.0001
MOS19	1	-2.4957	0.0349	5099.8254	<.0001
		N=191,924 R²= 0.1681, -2 Log L = 197425.76 P=<0.00011			

APPENDIX G. ANALYSIS OF MAXIMUM LIKELIHOOD ESTIMATES FOR RESTRICTED PROMOTION MODELS

Table 30. Logit Regression Results for Restricted Army Promotion Model

Parameter	DF	Standard Estimate	Error	Chi-Square	Pr > ChiSq
Intercept	1	1.3905	0.1518	83.9482	<.0001
NONCITIZEN	1	0.5665	0.1116	25.7553	<.0001
AFQTPERC	1	0.00904	0.00103	77.4421	<.0001
FEMALE	1	-0.1889	0.0396	22.7992	<.0001
SOMCOLL	1	0.1821	0.1619	1.2651	0.2607
COLLGRAD	1	2.5822	0.2720	90.1075	<.0001
ALTGRAD	1	-0.7893	0.0625	159.6424	<.0001
BLACK	1	0.1581	0.0416	14.4595	0.0001
LATINO	1	0.3139	0.0677	21.4713	<.0001
NATAM	1	-0.2262	0.1727	1.7151	0.1903
API	1	0.6103	0.1399	19.0426	<.0001
UNKNRACE	1	0.2708	0.1651	2.6902	0.1010
MARRIED	1	0.9033	0.0455	393.9023	<.0001
DEPENDENT	1	0.1277	0.0239	28.5697	<.0001
MORWAIVER	1	-0.0814	0.0603	1.8245	0.1768
AGE	1	-0.00959	0.00714	1.8078	0.1788
N=44,715 R²= 0.0346, -2 Log L = 27964.545 P=<0.0001					

Table 31. Logit Regression Results for Restricted Navy Promotion Model

Parameter	DF	Standard Estimate	Error	Chi-Square	Pr > ChiSq
Intercept	1	0.4659	0.1237	14.1841	0.0002
NONCITIZEN	1	0.3468	0.0651	28.4025	<.0001
AFQTPERC	1	0.0229	0.000730	983.1019	<.0001
FEMALE	1	-0.1202	0.0338	12.6564	0.0004
SOMCOLL	1	0.6433	0.2087	9.5024	0.0021
COLLGRAD	1	0.5390	0.1676	10.3431	0.0013
ALTGRAD	1	-0.6291	0.0431	213.2909	<.0001
BLACK	1	-0.2932	0.0312	88.1845	<.0001
LATINO	1	0.0283	0.0435	0.4230	0.5154
NATAM	1	-0.1341	0.0919	2.1327	0.1442
API	1	0.3363	0.0731	21.1657	<.0001
UNKNRACE	1	0.0118	0.1450	0.0066	0.9351
MARRIED	1	0.3829	0.0428	80.1400	<.0001
DEPENDENT	1	0.1970	0.0220	79.8400	<.0001
MORWAIVER	1	-0.2807	0.0274	105.0035	<.0001
AGE	1	0.0108	0.00596	3.3155	0.0686
		N=65,957 R²= 0.0364, -2 Log L = 46953.882 P=<0.0001			

Table 32. Logit Regression Results for Restricted Air Force Promotion Model

Parameter	DF	Standard Estimate	Error	Chi-Square	Pr > ChiSq
Intercept	1	0.4943	0.2299	4.6250	0.0315
NONCITIZEN	1	0.4961	0.1759	7.9508	0.0048
AFQTPERC	1	0.00870	0.00127	46.7072	<.0001
FEMALE	1	0.3130	0.0478	42.8291	<.0001
SOMCOLL	1	0.1677	0.2573	0.4248	0.5146
COLLGRAD	1	0.8555	0.2851	9.0041	0.0027
ALTGRAD	1	0.00695	0.1889	0.0014	0.9707
BLACK	1	-0.2867	0.0498	33.2118	<.0001
LATINO	1	-0.1307	0.0771	2.8740	0.0900
NATAM	1	-0.4205	0.2403	3.0620	0.0801
API	1	0.2936	0.1375	4.5565	0.0328
UNKNRACE	1	0.1763	0.1666	1.1199	0.2899
MARRIED	1	0.00632	0.0574	0.0121	0.9123
DEPENDENT	1	0.3149	0.0316	99.6074	<.0001
MORWAIVER	1	-0.1006	0.0604	2.7765	0.0957
AGE	1	0.0829	0.0116	51.3387	<.0001
		N=56,717 R²= 0.0093, -2 Log L = 22730.778 P=<0.0001			

Table 33. Logit Regression Results for Restricted Marine Corps Promotion Model

Parameter	DF	Standard Estimate	Error	Chi-Square	Pr > ChiSq
Intercept	1	0.1681	0.1320	1.6208	0.2030
NONCITIZEN	1	0.4783	0.0641	55.6915	<.0001
AFQTPERC	1	0.0128	0.000678	357.1389	<.0001
FEMALE	1	0.1594	0.0500	10.1796	0.0014
SOMCOLL	1	0.6413	0.2926	4.8034	0.0284
COLLGRAD	1	-0.4394	0.1361	10.4189	0.0012
ALTGRAD	1	-0.4643	0.0512	82.3331	<.0001
BLACK	1	-0.1995	0.0329	36.7887	<.0001
LATINO	1	0.0310	0.0365	0.7200	0.3961
NATAM	1	-0.2337	0.1143	4.1826	0.0408
API	1	0.1643	0.0954	2.9650	0.0851
UNKNRACE	1	-0.0460	0.0951	0.2333	0.6291
MARRIED	1	-0.0429	0.0341	1.5786	0.2090
DEPENDENT	1	0.1261	0.0162	60.4103	<.0001
MORWAIVER	1	-0.2975	0.0265	126.0589	<.0001
AGE	1	0.0258	0.00660	15.2431	<.0001
N=48,023 R²= 0.0179, -2 Log L = 47576.390 P=<0.0001					

APPENDIX H. ANALYSIS OF MAXIMUM LIKELIHOOD ESTIMATES FOR UNRESTRICTED PROMOTION MODELS

The results of the unrestricted promotion models for all services are shown in Tables G1 – G4. This sample includes all individuals, regardless of attrition status. Negative coefficients indicate a lower predicted probability of promotion, while positive coefficients indicate a higher predicted probability of promotion.

Noncitizens have a significantly higher estimated probability of promotion to E-4 in all four services. Their predicted promotion rates range from 16 percentage points higher (Army) to 13.5 percentage points higher (Air Force) than citizens. Other variables that have a positive effect on the predicted promotion rate are: higher AFQT percentile, some college, college graduate, male gender, Latino, API, married, and dependents.

Table 34. Logit Regression Results for Unrestricted Army Promotion Model

Parameter	DF	Standard Estimate	Error	Chi-Square	Pr > ChiSq	Marginal Effect
Intercept	1	0.4200	0.0688	37.2205	<.0001	-----
NONCITIZEN	1	0.6475	0.0495	171.1696	<.0001	0.160
AFQTPERC	1	0.00921	0.000476	373.7028	<.0001	0.023
FEMALE	1	-0.4607	0.0173	712.6943	<.0001	-0.110
SOMCOLL	1	0.4147	0.0704	34.6871	<.0001	0.103
COLLGRAD	1	3.0241	0.0865	1221.8789	<.0001	0.495
ALTGRAD	1	-0.8329	0.0315	697.0403	<.0001	-0.187
BLACK	1	0.3328	0.0194	293.7562	<.0001	-0.082
LATINO	1	0.3654	0.0307	141.6621	<.0001	0.091
NATAM	1	-0.0323	0.0877	0.1355	0.7128	-0.008
API	1	0.6020	0.0599	101.1363	<.0001	0.150
UNKNRACE	1	0.3616	0.0748	23.3995	<.0001	0.090
MARRIED	1	1.2228	0.0215	3244.7409	<.0001	0.285
DEPENDENT	1	0.1089	0.0111	96.7388	<.0001	0.027
MORWAIVER	1	-0.1413	0.0274	26.5350	<.0001	-0.034
AGE	1	-0.0600	0.00320	350.7270	<.0001	-0.015
N=112,287 R²= 0.1393, -2 Log L = 111260.29 P=<0.0001						

Table 35. Logit Regression Results for Unrestricted Navy Promotion Model

Parameter	DF	Standard Estimate	Error	Chi-Square	Pr > ChiSq	Marginal Effect
Intercept	1	0.0698	0.0646	1.1681	0.2798	-----
NONCITIZEN	1	0.6657	0.0398	280.4214	<.0001	0.152
AFQTPERC	1	0.0184	0.000382	2314.9517	<.0001	0.045
FEMALE	1	-0.1620	0.0185	76.5757	<.0001	-0.040
SOMCOLL	1	0.5772	0.0900	41.0855	<.0001	0.134
COLLGRAD	1	0.7467	0.0712	109.8516	<.0001	0.170
ALTGRAD	1	-0.8146	0.0244	1118.1302	<.0001	-0.200
BLACK	1	-0.0227	0.0181	1.5758	0.2094	-0.005
LATINO	1	0.2135	0.0244	76.4288	<.0001	0.052
NATAM	1	-0.1805	0.0480	14.1516	0.0002	-0.045
API	1	0.5716	0.0402	202.0131	<.0001	0.132
UNKNRACE	1	0.0663	0.0791	0.7020	0.4021	0.016
MARRIED	1	0.7918	0.0252	984.8056	<.0001	0.177
DEPENDENT	1	0.3948	0.0139	802.1487	<.0001	0.093
MORWAIVER	1	-0.4231	0.0146	836.1713	<.0001	-0.105
AGE	1	-0.0487	0.00308	249.3215	<.0001	-0.012
N=120,516 R²= 0.1189, -2 Log L = 139685.17 P=<0.0001						

Table 36. Logit Regression Results for Unrestricted Air Force Promotion Model

Parameter	DF	Standard Estimate	Error	Chi-Square	Pr > ChiSq	Marginal Effect
Intercept	1	-0.4170	0.0896	21.6711	<.0001	-----
NONCITIZEN	1	0.5977	0.0733	66.5004	<.0001	0.135
AFQTPERC	1	0.0112	0.000506	493.2495	<.0001	0.027
FEMALE	1	-0.1357	0.0183	55.2275	<.0001	-0.033
SOMCOLL	1	0.2926	0.1012	8.3600	0.0038	0.070
COLLGRAD	1	1.0211	0.0733	194.2336	<.0001	0.214
ALTGRAD	1	-0.3972	0.0678	34.3312	<.0001	-0.100
BLACK	1	0.00196	0.0219	0.0080	0.9289	0.000
LATINO	1	0.2274	0.0359	40.1807	<.0001	0.054
NATAM	1	-0.4359	0.1034	17.7839	<.0001	-0.108
API	1	0.5009	0.0564	78.8016	<.0001	0.115
UNKNRACE	1	0.3050	0.0685	19.8303	<.0001	0.072
MARRIED	1	0.3394	0.0254	178.0632	<.0001	0.080
DEPENDENT	1	0.7009	0.0163	1849.2226	<.0001	0.156
MORWAIVER	1	-0.2322	0.0251	85.2958	<.0001	-0.057
AGE	1	-0.4170	0.0896	21.6711	<.0001	0.000
N=91,510 R²= 0.1056, -2 Log L = 98876.147 P=<0.0001						

Table 37. Logit Regression Results for Unrestricted Marine Corps Promotion Model

Parameter	DF	Standard Estimate	Error	Chi-Square	Pr > ChiSq	Marginal Effect
Intercept	1	0.2749	0.0862	10.1679	0.0014	-----
NONCITIZEN	1	0.6078	0.0451	181.9755	<.0001	0.150
AFQTPERC	1	0.0137	0.000460	891.0088	<.0001	0.034
FEMALE	1	-0.2957	0.0304	94.6386	<.0001	-0.070
SOMCOLL	1	0.3796	0.1472	6.6528	0.0099	0.100
COLLGRAD	1	0.4973	0.1051	22.3843	<.0001	0.123
ALTGRAD	1	-0.7151	0.0358	399.1959	<.0001	-0.160
BLACK	1	-0.0759	0.0235	10.4395	0.0012	-0.020
LATINO	1	0.2467	0.0268	84.9287	<.0001	0.061
NATAM	1	-0.2453	0.0801	9.3702	0.0022	-0.060
API	1	0.3777	0.0648	33.9744	<.0001	0.093
UNKNRACE	1	0.2521	0.0691	13.3054	0.0003	0.062
MARRIED	1	0.8410	0.0254	1096.4424	<.0001	0.206
DEPENDENT	1	0.3051	0.0129	558.6526	<.0001	0.075
MORWAIVER	1	-0.3602	0.0186	373.8226	<.0001	-0.085
AGE	1	-0.0700	0.00426	270.2981	<.0001	-0.017
		N=98,529 R²= 0.1243, -2 Log L = 99783.312 P=<0.0001				

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