Community Socioeconomic Change, Military Enlistment, and Enlistee Characteristics, 1990 - 2008

A proposal submitted to the
Population Association of America
for its 2013 Annual Meetings

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Introduction

Since the 1973 transition to the All Volunteer Force (AVF), the demographics of active duty personnel have become more racially and ethnically diverse, and an increasing proportion of soldiers are now women. Enlistment has also become more spatially concentrated, with rural communities and small towns sending a disproportionate share of their young adults into the military. These trends have implications for the life trajectories of the adolescents who choose to join the military, as well as the communities that produced them. The paper we propose will exploit a unique data set, described below, to tease out the interactions between these two processes. Our research questions are as follows: 1) How do the absolute and relative human capital profiles of military enlistees vary across communities with different sociodemographic and economic profiles?; and 2) How do changes in a community's economic circumstances affect its rate of enlistment, and the relative selectivity of its young adults who decide to join the armed forces? This paper seeks to move the discussion beyond the current focus on individual-level predictors of military enlistment, or on broad generalities about the geographic origins of active duty personnel, to a more synthetic appreciation for the contributions of individual and community features. If we know that the characteristics of young adults most likely to join the military have changed, are there further distinctions based on the kind of community they "come from?" Do we find evidence that in some community contexts, the military appears to "cream" the most promising young people, while in others, adolescents appear to regard the military as an employer of last resort? And how do shifts in community-level social and economic profiles affect the calculus of decision-making, rendering the military a more or less attractive option for young people transitioning to adulthood?

Changing Demographic Characteristics of Military Personnel

The military is the nation's largest employer, and represents a key institutional site of state leverage on processes of stratification and inequality. The armed forces represent the main axis of state intrusion into the transition to adulthood for a sizable minority of the American population, and may have significant social mobility consequences across the life course. For low-skilled young workers who are at elevated risk of unemployment, the military can provide stable employment, access to health care, and occupational training. Veterans also represent a key group of recipients of redistributive social policy, including VA home loans, preferences in public employment, GI Bill educational benefits, and the provision of health care for the indigent or those who have injuries or medical conditions related to their time in the military.

Changes in the prevalence of exposure to the military, as an institution, or in the kinds of people who are employed by the military can highlight the change in opportunities for the state to equalize educational and occupational outcomes. African Americans and working class whites are over-represented among today's active duty military personnel (Fernandez 1996, Segal and Segal 2004), suggesting that the effects of institutional participation are now concentrated among specific groups. This demographic shift occurred against a backdrop of rising levels of human capital (Asch et. al. 2001, Day and Bauman 2000) and a shrinking proportion of the general population who have prior military experience (Segal and Segal 2004). To the degree that the armed forces are able to provide experience, training, and benefits that will

help these young adults overcome disadvantages they face in the civilian labor market, it may then serve as a consequential "social leveler" for the individuals who join the institution.

Communities of Origin

American states and communities are not represented in the armed forces in the same proportions they are among the civilian US population. That is to say, some states send more than their "fair share" of young adults into the military, while others have relatively few former residents in uniform. Southern states tend to be over-represented among active duty personnel, as do rural states in the West. In general, the Northeast and Midwest supply a smaller percentage of military personnel than would be expected. Rural communities also provide a disproportionate share of military staff. Although only one in five US adults lives in a rural community, an estimated 45% of armed forces personnel are from rural areas, as are 26% of casualties that have occurred during the current US military operations in Iraq and Afghanistan (Curtis and Payne 2010, Halseth 2007, O'Hare and Bishop 2007, Tyson 2005).

In addition to disparities based on state of residence and rural status, the spatial concentration of recruits likely results from variation in adolescents' prior exposure to someone with military experience and its effects on propensity to enlist in the military (Brown and Rana 2005). The social context in which adolescents decide to join the armed forces, then, has implications for the distribution of geographic origins of military personnel. For example, young men whose fathers had military careers are more likely to enlist than are the sons of other men (Faris 1981). The same is true for adolescents from communities with a larger military presence, as measured by the share of active duty military personnel among a county's workers, although the effect of military presence varies by race and ethnicity (Kleykamp 2006). Higher enlistment rates among young adults from the South may be related to the concentration of military installations in Southern states, or to the large share of veterans who live in that region. Evidence further suggests that the targeted location of recruiters and recruitment programs also may influence the spatial distribution of new military accessions. For example, the concentration of Junior Reserve Officer Training Corps (JROTC) programs in inner city high schools (Coumbe et. al. 2008), combined with the higher enlistment rates among students who participate in JROTC programs (Pema and Mehay 2009) likely means that specific urban areas are also disproportionately represented among those in uniform.

Many of these geographic disparities in "sending communities" also appear to be linked to the economic prospects of the young adults who live there: states and communities with declining economic profiles send more people into the armed forces, and places where non-military opportunities are plentiful typically send fewer (Brown 1985). The economic logic associated with spatial variation in enlistment rates is supported by temporal fluctuations in recruitment patterns: both the number and qualifications of new military applicants are generally tied to economic conditions, including the young adult unemployment rate and comparison between civilian and military pay rates (Asch et. al. 2009, Dale and Gilroy 1984).

Following separation from the military, unmarried personnel are likely to move back in with their parents, reflecting that for many, the relocation associated with being in the armed forces is viewed as temporary (DaVanzo and Goldscheider 1990, White and Lacy 1997). In recent years, as increasing shares of military personnel are exposed to overseas deployment and combat, these returning soldiers, airmen, and marines are likely to bring with them physical, cognitive, and psychological scars (Tanielian and Jaycox 2008), meaning that communities with

high rates of institutional sending may also have critical needs to provide adequate services for these men and women as they return from battle.

Data and Planned Analysis

We will pursue questions related to the individual characteristics and community origins of new enlistees with a unique set of data obtained from the Pentagon's Office of the Secretary of Defense and Joint Staff. These data include a variety of individual-level characteristics for all new active duty military enlistees in 1990, 1995, 2000, 2005, and 2008, including the state, city, and ZIP code for their hometown of record. These micro-level records consist of the month and year of each individual's accession to the military, the term of their initial enlistment contract, and the service branch they entered. It also includes their date of birth, gender, race, ethnicity, number of dependents, and marital and citizenship status. Finally, each new enlistee's level of educational attainment, their score on the Armed Forces Qualifying Test (AFQT) – the standardized test used to both screen applicants and assign individuals accepted into the military to their initial occupational specialty – and whether their admission required a waiver of standard entrance guidelines, is detailed. A brief summary of selected demographic and human capital characteristics over the two decades included in this dataset is presented in Table 1.

Table 1. Select Characteristics of New Military Enlistees, 1990 – 2008

Year	Pct. Female	Pct. Black	Pct. Hispanic	Median AFQT	Pct Non-Citizen
1990 (N=231,535)	13.11	20.66	6.83	58	2.80
1995 (N=173,637)	17.37	18.53	8.80	59	3.56
2000 (N=188,720)	18.53	20.20	10.87	56	4.43
2005 (N=160,771)	15.28	12.56	13.80	60	3.66
2008 (N=188,123)	15.76	14.27	14.25	57	3.28

As Table 1 demonstrates, the composition of new entrants to the armed forces has shifted fairly dramatically over time. The relative shares of women and blacks in uniform have fluctuated, although women now represent a larger proportion, and blacks a smaller proportion, of all new enlistees than was true two decades ago. Hispanic representation has monotonically increased, and Hispanics are now represented in the same relative shares as are blacks. Combined, these groups provide close to one-third of all new military personnel. While military experiences were once the purview of young white men, the institution now plays an important role in the transitions to adulthood, providing critical early job market experience for an increasingly diverse group of young adults. Given the persistence of high levels of residential segregation by race and ethnicity throughout the United States, these descriptive statistics also suggest that the burden of institutionally-linked out-migration may be concentrated among particular kinds of "sending" communities.

The inequality in spatial distribution of enlistment is presented in extremely broad strokes in Figure 1. This figure depicts the rate of military enlistment by state in 2008, calculated as the number of new accessions divided by the total population of young adults aged 18 – 30.[2] It shows that states with the highest enlistment rates are concentrated in the South and West.

[2] Note that military staffing policy currently allows new enlistments up to age 42. However, given the relatively small number of these older adults who join the armed forces for the first time, we use a more restricted population base in the denominator.

Indeed, with the exceptions of Maine and Missouri – two states with largely rural populations – all 15 of the states with the highest rates of enlistment are in these two regions.

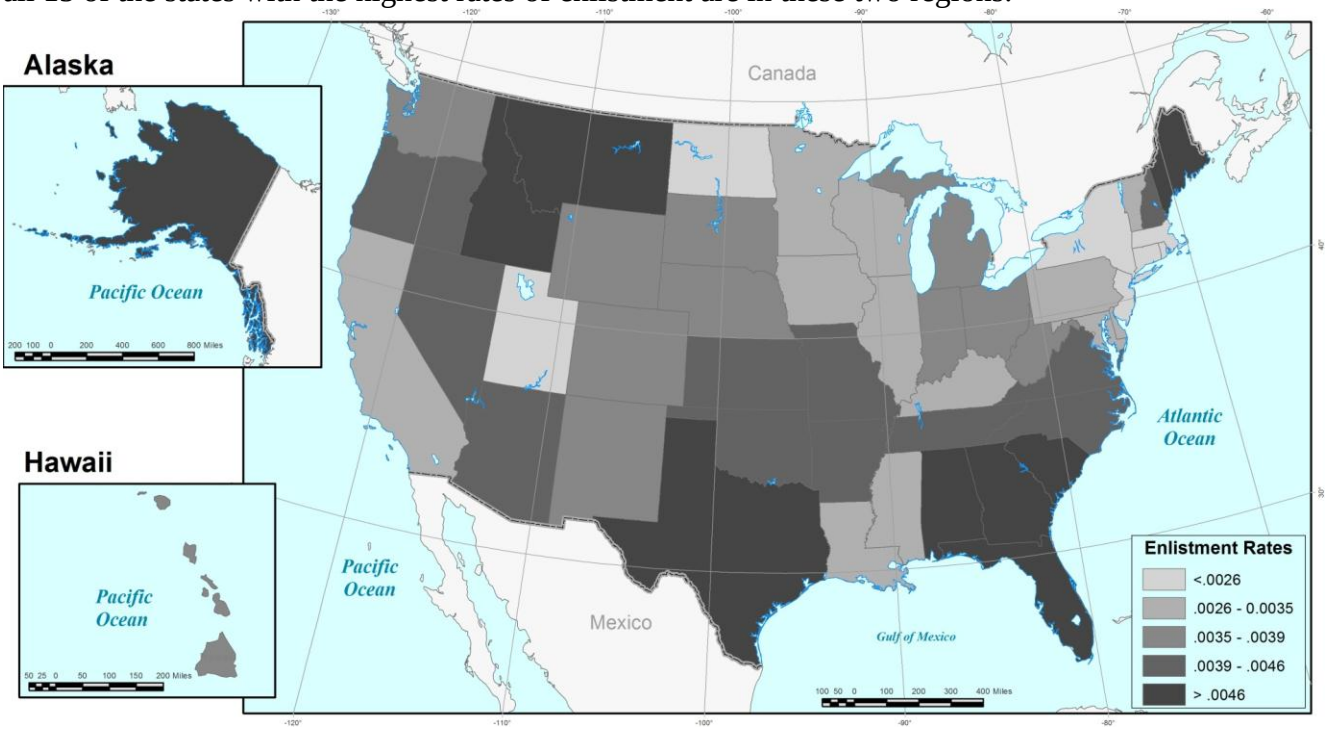

Figure 1. Young Adult Enlistment Rates by State, 2008

Our preliminary work has identified the characteristics of communities with high and low levels of military sending. Beginning with 2000 data, we employ the Census Bureau's Zip Code Tabulation Areas (ZCTA) to approximate the characteristics of ZIP codes. For 1995 data, we use the Missouri Census Data Center's online crosswalk which identifies all census tracts contained within a ZIP code, including weighted population indicators for census tracts that cross ZIP code boundaries (http://mcdc2.missouri.edu/websas/geocorr90.shtml). Table 2 presents the results of Zero-Inflated Poisson (ZIP) regression analysis, predicting the number of military enlistees from each ZIP code in four of the five years for which we have enlistment data.[3] These results suggest that sending communities with working class – but not poor – populations and few economic prospects for young adults are likely to have a higher number of enlistments. For example, communities that have both lower percentages of adults with a college education, and lower rates of child poverty have higher enlistment. Similarly, communities with higher levels of youth unemployment predict that a larger number a community's of young adults will enlist in the military.

[3] Note that we are not convinced that ZIP is the best analytic approach for these data. We have used it for our "first pass" at an assessment at the cross-sectional relationship between enlistment and community characteristics because military enlistments, our outcome variable of interest, are Poisson distributed, and because we have a large number of ZIP codes in each year that did not have any enlistments. ZIP regression allows the simultaneous estimation of: 1) a binomial regression predicting the likelihood of falling into the "zero" count category, and 2) for those observations with nonzero values on the outcome variable, a Poisson-distributed regression. In general, the ZIP codes with no enlistments tended to be sparsely populated rural areas, making total population a likely candidate for the inflationary factor.

Our future steps with this project are as follows:

- Rectify issues with the use of ZIP codes – specifically, accounting for changes in ZIP code boundaries over time. Because ZIP code boundary changes – although relatively rare – may mean that aggregated Census/ACS data referencing a specific ZIP code may not refer to the same geographic area over the full course of our investigation, we have been engaged in a data-cleaning effort. Using materials from the US Postal Service, we are identifying the timing and location of ZIP code boundary changes, and developing an approach that will allow us to identify the smallest geographic area with consistent boundaries over the two decades of our analysis. Note that there will be some geographic "slippage" because census tracts, and ZCTAs, do not have perfect spatial correspondence to ZIP codes adhered to by the US Postal service and used in administrative data. However, the effect of this lack of precision is anticipated to be relatively minor, as most ZCTAs correspond to ZIP code boundaries (see www.census.gov/geo/ZCTA/zcta.html for additional information). Additionally, the 1990 data will be weighted to allocate community-level characteristics based on the share of a census tract residing in each ZIP code.
- Embed individuals within their communities to identify the cross-sectional relationship between young adults' absolute and relative human capital characteristics and the characteristics of their home communities. This will involve linking individuals and contextual factors using ZIP codes. We will conduct regression analyses for each of our observational years, using community sociodemographic and economic factors to predict, for example, enlistees' AFQT scores.
- We will use regression analyses to further interrogate which community-level social and economic indicators are linked to high and low levels of military enlistment in each observational year. These will include lagged effects to identify, for example, whether recent increases or declines in the local unemployment rate affect military enlistment.
- Finally, with a multilevel modeling approach, we will identify whether the contextual effects on enlistment behavior have changed over time, and how community characteristics might differentially impact enlistment probabilities for adolescents and young adults with specific demographic or human capital profiles. We are particularly interested in the way that these may vary by race, Hispanicity, or gender.

Concluding Thoughts

In the All-Volunteer Force era, these questions have implications not only for the individuals and families who are directly affected, and for the communities that serve as population reservoirs for this institution, but for broader patterns of social inequality. Today's military barracks are largely occupied by African Americans, young adults from Southern states and rural areas, and those without a college degree – and for many of these young people, joining the armed forces represents an intentional effort at upward socioeconomic mobility. The degree to which the military facilitates – or fails to facilitate – this process is consequential for us all.

Table 2. Predicting Total Number of Enlistments with Contextual Measures, 1995-2008

	1995	2000	2005	2008
Economic & Labor Market Measures				
Child Poverty Rate	-0.006***	-0.006***	-0.010***	-0.016***
	(0.001)	(0.001)	(0.001)	(0.001)
Percent College-Educated Adults	-0.016***	-0.017***	-0.017***	-0.016***
	(0.001)	(0.001)	(0.001)	(0.001)
Percent Adults without High School Diploma	0.001	-0.003**	-0.002†	0.004**
	(0.001)	(0.001)	(0.001)	(0.001)
Percent Jobless Males	-0.010***	-0.012***	-0.016***	-0.017***
	(0.001)	(0.001)	(0.001)	(0.001)
Youth Unemployment Rate	0.013***	0.014***	0.015***	0.014***
	(0.001)	(0.001)	(0.001)	(0.001)
Demographic Measures				
Percent Rural	-0.019***	-0.019***	-0.019***	-0.019***
	(0.000)	(0.000)	(0.000)	(0.000)
Percent White	-0.006***	-0.009***	-0.007***	-0.008***
	(0.000)	(0.000)	(0.000)	(0.000)
Sex Ratio	-0.205***	-0.272***	-0.274***	-0.324***
	(0.034)	(0.036)	(0.038)	(0.037)
Percent Foreign-Born	-0.018	0.276**	0.031***	0.030
	(0.101)	(0.095)	(0.010)	(0.102)
Social Disorganization				
Percent Single Parent Families	0.016***	0.012***	0.006***	0.010***
	(0.001)	(0.001)	(0.001)	(0.001)
Percent Women Never Married	-0.007***	-0.010***	-0.011***	-0.013***
	(0.001)	(0.001)	(0.001)	(0.001)
Military Culture				
Percent Working-Age Adults with Military Experience	0.028***	0.030***	0.031***	0.037***
	(0.002)	(0.002)	(0.002)	(0.002)
Intercept	3.277***	3.994***	4.075***	4.249***
	(0.089)	(0.085)	(0.090)	(0.090)
Potential Enlistees				
Inflationary Factor: Total Population	-0.002***	-0.002***	-0.002***	-0.002***
	(0.000)	(0.000)	(0.000)	(0.000)
Inflationary Factor: Intercept	1.293***	1.301***	1.622***	1.695***
	(0.050)	(0.048)	(0.048)	(0.048)
Alpha	0.728	0.650	0.638	0.694
	(0.009)	(0.008)	(0.009)	(0.009)

NOTE: Coefficients presented first, standard errors in parentheses. *** $p \leq 0.001$; ** $p \leq 0.01$; $p \leq 0.05$; † $p \leq 0.10$.

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