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The Spillover Effects of Military Communities on the Need for Health Care Safety-Net Services

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on the Need for Health Care Safety-Net Services

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ABSTRACT

This paper argues that large communities of military dependents and retirees – combined with their exclusive access to free or low-cost Department of Defense health care and insurance – alter local socioeconomic and labor market characteristics in ways that contribute to the need for health care safety-net services. Multivariate regression analyses indicate that areas with relatively large military communities have higher civilian medical uninsurance rates and lower rates of employer-offered health benefits, both of which contribute to pressures on providers of care to needy populations. Uninsurance rates grew more slowly in areas with relative declines in military populations, net of overall population change, but the presence or closure of military medical facilities was not a significant predictor of uninsurance rates or employer-offered benefits. These findings suggest that some of the larger systemic disadvantages of high uninsurance rates in some areas are attributable to political and strategic decisions about where military personnel serve and how they are compensated with health care benefits.

INTRODUCTION

Much of the recent comparative work on the American welfare state focuses on the array of institutional arrangements by which it defines and pursues social welfare goals (see for example Howard, 1997; Western and Beckett, 1999; Hacker, 2002; Gifford, 2003). Whereas many other wealthy democracies have developed universal and comprehensive social spending programs, the US welfare state is uniquely fragmented and diverse. In addition to recognizable welfare state programs for targeted populations (such as Social Security, TANF, Medicare, and Medicaid), public social protection is afforded through government regulation and subsidization of the private social welfare programs (such as employment-related pensions and health insurance, and tax expenditures for housing costs), and through state institutions, programs, and policies that intervene into social and market outcomes – not as their stated purpose, but as a consequence of pursuing other, “non-welfare” political priorities. Thus indirect, selective, and behavior-based social protection strategies complement and substitute for rights-based universal, comprehensive social spending programs (Gilbert, 2004).

While the scope of US welfare state efforts may be greater than many analysts have previously acknowledged, within such a fragmented context, state institutions and policies that selectively achieve social welfare goals may nonetheless create or exacerbate pressures for state interventions into social and labor market outcomes. This paper considers how within the context of the US’s fragmented welfare state, decisions made in the pursuit of one set of political priorities – national security – differentially impact local-level determinants of public social welfare efforts. I examine the spillover effects of military populations and medical infrastructures on the most underdeveloped aspect of the formal US welfare state: the public provision of health care and health insurance. This has implications for understanding the

environments in which some “social problems” make their way onto the public agenda while others do not, and for anticipating the future demands for social safety-net services based on changes in military personnel policies. Importantly, it considers how decisions about where military personnel serve, and how they are compensated with in-kind social welfare benefits, distribute the burdens of our national security policies.

Specifically, this paper looks at how military communities impact the environments within which local health care safety-nets – i.e., public, non-profit, and private providers of health care and insurance to low-income, uninsured, and underinsured persons – operate. Military communities are of interest for two reasons: first, their geographic distribution throughout the United States is largely exogenous to local health care market conditions. Second, in the absence of national health insurance in the US, the Military Health System (MHS) represents a significant, non-means-tested government health care entitlement for a defined group of working-age Americans and their dependents. The MHS consists of two main components: 1) Department of Defense hospitals and outpatient clinics (known as medical treatment facilities, or MTFs) that offer free or low-cost medical care to military dependents, retirees, and their survivors; and 2) the Tricare health insurance program (formerly the Civilian Health and Medical Program of the Uniformed Services, or CHAMPUS), which consists of low-cost, comprehensive managed care and fee-for-service options for military dependents and retirees.

I argue that large communities of military personnel, dependents and retirees – combined with their access to a generous public health insurance program and free or low-cost care from military medical facilities – impact local labor and health care market characteristics, structuring them in ways that simultaneously contribute to the need for safety-net services and hinder safety-

net providers' capacity to care for needy populations. There are two main reasons why military communities and the MHS might impact local health care safety-nets.

First, the presence of a large military community is likely to increase uninsurance rates among the non-military population. This could occur because military installations stimulate the development of civilian, non-government employment sectors that are characterized by low wages and few benefits. Moreover, military installations tend to concentrate large numbers of employable military spouses and recent retirees. This can create downward pressures on wages, particularly at the lower end of the pay scale.

Second, spouses' and retirees' access to Tricare may "crowd out" employer-offered health insurance, and further increase uninsurance rates. Coverage of large portions of the labor force through Tricare may discourage employers from subsidizing employee health insurance plans, either because such benefits are perceived as unnecessary for recruitment purposes or because low employee take-up rates result in increase premium costs. Additionally, the cost structure of MTFs (which are designed to encourage their usage by Tricare beneficiaries) may contribute financial stresses on safety-net providers by reducing the pool of insured patients from whom civilian providers may shift the costs of charity care.¹

Given the dearth of research on how military policies impact civilian health care environments, the study's primary purpose is to explore how "non-welfare" policies and institutions structure the social, political, and economic environments where social welfare decisions are made. Thus the focus at this stage is on the spillover effects of military personnel policy and basing decisions on characteristics of the environment within which health care

PT¹ Unfortunately, due to data constraints, this phenomenon is not examined in detail here.

safety-nets operate, rather than safety-net outcomes such as the concentration of uncompensated care. These will be examined more closely in subsequent studies. The organization of the study is as follows: I briefly describe health care safety-nets and review the literature on regional variation in uninsurance rates. I then give an overview of military communities and the Military Health System, with attention given to their potential impact on labor markets, uninsurance, and employer-offered health care benefits. These sections are followed by formal hypotheses, descriptions of the data and methods used, results of multivariate analyses, and concluding remarks.

HEALTH CARE SAFETY-NETS

In the absence of national health insurance, the health care safety-net is a critical avenue of access to health care for the medically indigent and uninsured. Baxter and Mechanic (1997) define the safety-net in any given community as “the institutions, programs, and professionals devoting substantial resources to serving the uninsured or socially disadvantaged” (p. 9). These typically include government health insurance programs (such as Medicaid) and public health initiatives, community health centers, public and university teaching hospitals, and uncompensated “charity care” provided by private health care providers.² The legal responsibility of institutions to provide care for poor patients depends on the terms of their

² The American Medical Association defines “charity care” as “services provided at free or reduced price in light of a patient’s financial need” (Institute of Medicine 2003:48). It is therefore distinct from the “bad debt” portion of some definitions of “uncompensated care” and does not assume the insurance status of patients. While precise numbers are difficult to estimate, research suggests that large amounts of uncompensated care is provided to the uninsured, and that large amounts of care given to the uninsured is uncompensated.

charter. The tax-free status of public and non-profit institutions is linked to their provision of charity care. Private hospitals are required by law to provide limited care to persons regardless of their ability to pay (Institute of Medicine, 2003)³, while collectively, private practitioners and institutions provide substantial amounts of charity care for the uninsured.

While significant variation in the composition of safety-net provision exists across localities, within particular health care systems, safety-net care tends to be concentrated in a single non-profit hospital (usually a public teaching hospital) and in community health centers (Baxter and Feldman, 1999). Lipson and Naierman (1996) report that the percentage of uninsured discharges from public hospitals is three times higher than the average of all other hospitals, and that private physicians contribute only five percent of their incomes to care for the uninsured.

In addition to tax dollars and government grants, the care provided to the uninsured through the safety-net is supported largely through the practice of cost-shifting from Medicaid and from privately insured patients (Lipson and Naierman, 1996; Baxter and Feldman, 1999). High health care costs that result in decreased Medicaid reimbursement rates, reductions in employer health benefits, and reductions in private practitioners' charity care place strains on the ability of the safety-net to provide for the indigent and medically uninsured.

³ Additionally, private practitioners and for-profit institutions treat the costs of uncompensated care as business losses, which reduces their tax burdens. For these reasons, following Howard (1997), it is reasonable to view much of the “private” costs of charity care provision as public tax expenditures.

Uninsurance

Because a preponderance of safety-net patients are uninsured, understanding the factors that contribute to uninsurance – both across communities and over time – is essential to understanding the pressures faced by safety-net providers. In 2003, 45 million persons in the US (15.6 percent of the total population) lacked private or government health insurance coverage, a 21 percent increase in the proportion of the population without coverage in 1987 (Census Bureau, 2004). Shi (2000) reports an increased likelihood of medical uninsurance among younger, non-white, male adults; low-income earners; the unemployed and self-employed; persons who attain no education beyond high school; and those who live in the south or west, and in non-metropolitan areas. Regional variation in uninsurance rates can be attributed to similar demographic and socioeconomic factors.

Uninsurance has also been linked to characteristics of labor and health care markets. In addition to high unemployment and low wages, areas with high uninsurance have fewer workers in large firms, and more in industries such as retail and services. Private insurance premiums tend to be more expensive, with employers paying a smaller share of monthly premium costs, while public insurance programs are scarcer or more difficult to qualify for (Lipson and Naierman, 1996; Marsteller et al., 1998; Cunningham and Ginsburg, 2001). Regional differences in the uninsured's access to care persist even when controlling for their health status and socioeconomic characteristics (Cunningham and Kemper, 1998), and is closely tied to the overall size of the uninsured population; uninsured persons have less access to care when they live in areas with large uninsured populations (Cunningham, 1999).

Moreover, evidence is mounting that high uninsurance rates affect health care access and quality for insured persons as well (Institute of Medicine, 2003). Higher uninsurance rates strain

the resources of safety-net providers, many of which are operated by local government agencies. This could result in pressures for increased taxes or service reductions (in health care or elsewhere). Private providers may respond to charity-related revenue losses in the same way that they have to cost-containment measures such as utilization review: by reducing charity care, or, where possible, raising prices on some services while cutting others. They may also decline to locate in high-uninsurance health care markets or close existing practices and facilities. This could result in the concentration of uninsured patients among a small number of facilities. Declines in health care access and quality attributable to high rates of uninsurance are therefore not limited to the uninsured, but in fact spill over to the population of insured patients.

In sum, the programs and providers that comprise local health care safety-nets are challenged by the overall increase in the number of uninsured patients. Conditions that contribute to uninsurance thus reduce the safety-net's capacity to respond to the medical needs of vulnerable populations, and may have spillover effects that are felt by the larger community. As the next section suggests, military populations and the system of providing health care benefits for them can exacerbate these conditions.

MILITARY COMMUNITIES AND THE MILITARY HEALTH SYSTEM

At the beginning of the 1990s, there were over 180 major military installations in the United States (i.e., that employed at least 300 active-duty personnel). The distribution of these installations was largely dictated by geographical and topographical features deemed attractive by military bureaucrats (e.g., access to deep-water ports or large tracts of uninhabited land for conducting training maneuvers), and by lobbying efforts of local civic leaders in the first half of the 20th Century (Turner, 1965; Markusen et al., 1991; Ferrell, 1997; Lutz, 2001; Gifford, 2003).

Following the recommendations of the Base Reconciliation and Closure Commission (BRAC) in 1988, 1991, 1993, and 1995, Congress closed or substantially reduced activities on 97 major installations in the US⁴, while the National Defense Authorization Act for Fiscal Year 1991 brought the number of active duty personnel in the US down from over two million in 1990 to 1.4 million by 1999 (where it remains at the time of this writing). About 1.1 million of these were stationed in the United States, mostly at major installations.

In addition to training, administrative, and infrastructural facilities, larger military installations maintain housing, recreational, medical, and subsidized, tax-free consumer facilities for exclusive use by members of the military community. These communities include not only active-duty military service members, but also dependent spouses and children, and military retirees (i.e., persons who completed 20 or more years of service or who were discharged with service-related disabilities) and their dependents and survivors. Since the end of the draft in 1973, members of the armed forces have exhibited higher propensities towards marriage – and at younger ages – than their age-appropriate peers in the civilian labor market (Harrell et al., 2004). Approximately 51 percent of the active duty military was married in 2002 (Office of the Undersecretary of Defense 2002), bringing more than 1.9 million dependents into the military community. Additionally, upon separation from the military, retirees tend to concentrate in communities with easy access to military base facilities – particularly low-density, low-tax

⁴ The BRAC Act of 1988 was formulated in large part to overcome local political pressures against the closure of military installations by requiring that Congress and the President approve or disapprove of BRAC's suggestions for successive rounds of closures in their entirety, rather than on a case-by-case basis.

counties in the sunbelt and in coastal areas (Jackson and Day, 1993).⁵ Military retirees in the US totaled 1.7 million in 2002, along with approximately 260,000 surviving families of retirees.⁶ In total, the military community included between 6 and 8 million people in 2002. While this amounted to only about 2 percent of the US population, the military community is not equally distributed throughout the country. Table 1 shows the areas with the largest military communities, both in actual numbers and proportional to the total population. The first column demonstrates that military communities are concentrated in the South and the West, and in many areas make up large portions (even majorities) of the population. The second column shows that many members of the military community reside in large urban areas, rather than more rural areas. These top 20 MSAs were home to almost half the entire military community between 1995 and 2000; only about 20 percent lived in non-metropolitan areas over this time.

[Table 1 about here]

In spite of the amenities available on military installations and the physical and administrative separation between bases and adjoining towns, members of the military community have extensive commercial contact with civilian communities. Importantly, many military families do not live in military housing due to shortages, and instead receive stipends to

⁵ Jackson and Day found that in 1989, concentrations of retirees remained high in three areas that had experienced base closures at least 15 years earlier. This has implications for the future migration patterns of retirees following the base closures of the 1990s.

⁶ Figures on active duty personnel and dependents come from the Department of Defense (2001); the source for retirees and survivors is Office of the Actuary (2001). Because survivors are counted by families receiving cash pension annuities, the figure undercounts the number of persons eligible for military health care benefits.

pay for rented civilian housing. While retirees may use base facilities, they are ineligible for military housing and for all intents and purposes, remain residents and consumers in the host community (as I will argue below, however, health care is an important exception).

The impact of the military on local safety-nets

Gifford (2003) shows that military populations impact the environments in which social welfare decision-making occurs. For example, in the US, large military populations indirectly reduce state public assistance spending through their negative impact on state-level unemployment rates. Nonetheless, both the structure of labor markets that develop around military installations and the provision of comprehensive low-cost health system exclusively for members of the military community may contribute to pressures on local safety-nets.

First, the presence of military installations and large military communities may structure labor markets in ways that contribute to high rates of uninsurance. On the one hand, military installations create jobs for federal employees who participate in the Federal Employees Health Benefits Program (FEHBP), and ensure a steady consumer base with an income stream that is resilient to economic downturns. Retiree pensions generate additional employment, and in some areas sustain as many jobs as some manufacturing sectors (Hefner, 1992). As such, military bases have been linked to positive private sector employment growth at the county-level (Poppert and Herzog, 2003).

On the other hand, many military bases are adjacent to economically depressed areas, while military communities themselves contain large numbers of young, highly-transient families with income characteristics of the working poor, (see for example Harrell, 2000; Schwarz-Nobel, 2002). As a result, high-military areas tend to have high rates of non-government employment in smaller firms and in industries such as retail services (Turner, 1965;

Booth et al., 2000; Lutz, 2001; Booth, 2003; Hicks and Raney, 2003).⁷ Such jobs tend to have low pay and rely heavily on part-time or contingent workers, and are less-likely to offer benefits such as pensions and health insurance than full-time employment in sectors such as manufacturing (Kalleberg, Reskin, and Hudson, 2000).⁸

Given the high marriage rates among service-members, military installations also geographically concentrate populations of military spouses, who tend to have more education than their civilian peers (Schwartz et al., 1991; Harrell, 2004). In areas where the military is a dominant employer, this could further exacerbate monopsonistic effects on the supply of labor to employers. Both Turner (1965) and Lutz (2001) provide evidence of lower civilian earnings in cities adjoining military bases than in their states as a whole. On the other hand, frequent transfers limit military spouses' accumulation of human capital, and these losses translate into lower wages and higher unemployment than similarly situated civilian women (Schwartz et al., 1991; Payne et al., 1992; Harrell et al., 2004). Military spouses therefore compete with local residents (particularly other women) for already low-paying civilian jobs rather than better-

⁷ The impact of military bases on work in the underground economy such as prostitution and the drug trade (Lutz 2001) is outside the scope of this paper, but such "quality of life" issues are not irrelevant to the difficulties faced by civic leaders in trying to attract higher-skill, higher-wage employment to military areas.

⁸ Moreover, the military may generate fewer tax revenues for local governments than other types of employers with comparable payrolls, wage structures, and numbers of workers. The military services pay no local property taxes on the land they occupy, and sales taxes are not levied on purchases from on-base retail shops, supermarkets, or gas stations. On-base purchases also reduce local merchants' sales volume on items such as food, clothing, and, notably, prescription drugs (Turner 1965; Lutz 2001). Active-duty service-members pay no property tax when they reside in base housing, and pay income taxes on the states in which they are legal residents, which may be different from the state in which their duty station resides. On the other hand, few employers offer the types of universal social welfare programs available to members of the armed forces and their dependents, without which many would require support from more general social programs (Schwartz-Nobel 2002; Gifford 2003).

government employment on military installations. This partly accounts for the low wages of women in areas with large military communities compared to areas without a military presence (Booth et al., 2000).

Younger military retirees (the average military retirement age in 2002 was 49.9) are more strongly drawn to communities with military facilities than their older counterparts, and also opt for areas with less unemployment and higher wages. About 70 percent of retirees younger than 65 pursue a second career, though recent retirees earn less than civilians of similar age and education attainment (Snyder, 1994).⁹ Through near-universal participation in the Tricare health insurance program, both spouses and retirees enter the labor market without requiring health care benefits from their employers (although they may nonetheless participate in such plans). Where large military communities exist, Tricare may therefore “crowd-out” employer-offered plans, as occurs with Medicaid (see Cutler and Gruber, 1996). Employers may find health benefits unnecessary to attracting and keeping employees; alternately, low take-up rates among Tricare members may limit employers’ ability to negotiate premium rates with insurance companies, which could further discourage take-up among non-Tricare employees.

Second, dependents’ and retirees’ access to free or low-cost care at MTFs may reduce the base of insured patients from which civilian providers may cost-shift care for the uninsured. MTFs include hospitals of various sizes and outpatient clinics, staffed primarily by military medical personnel. Care for military personnel – provided free of charge – is the first priority of these facilities, but in reality, dependents, retirees, and survivors make up most of the patients

⁹ In spite of their high rates of employment, however, Snyder (1994) argues that high concentrations of retirees do not have a depressing affect on wages, except perhaps in smaller communities.

cared for by MTFs. For example, through the 1990s, active duty military personnel made up less than 30 percent of all MTF hospital admissions, and less than 40 percent of all outpatient visits (Department of Defense 1997).

While members of the military community consume more health care than their civilian peers, much of this is obtained at MTFs rather than civilian facilities (Hosek et al., 1995; Zwanziger et al., 2000). Active duty personnel obtain virtually all of their care from MTFs, and therefore have little participation in civilian health care markets. In the early 1990s, military dependents living within an MTF “catchment area” (i.e., roughly within 40 miles of an MTF) received a minimum of three-fourths of their care at MTFs, but even those outside of catchment areas received a third of their care from MTFs (at the time, about 87 percent of dependents lived in catchment areas); retirees and survivors in catchment areas received at least one-half of their care from MTFs, while those in non-catchment areas relied more heavily on the civilian health care system (Hosek et al., 1995). Thus where military communities are relatively large and low-cost military medical care is available, a large portion of the insured population does not cross-subsidize the medically indigent and uninsured. The remaining, civilian portion may face higher insurance premiums as providers seek to recover the costs of their charity care by raising prices. In the long run, this might make health care and insurance less affordable for greater numbers of employers and individuals.

HYPOTHESES

To summarize, health care safety-nets’ capacity to provide care for the uninsured and the medically indigent is threatened by increasing uninsurance rates and medical care costs, and decreasing levels of charity care (associated with higher health care costs). The impact of

military communities on local labor markets, the composition of employment sectors, employers' propensity to subsidize their workers' health care, and the ability of providers to cost-shift can exacerbate these conditions. I therefore make the following hypotheses regarding military communities.

H1: Areas with relatively large military communities will have higher rates of medical uninsurance than areas with smaller proportions of military dependents, retirees, and survivors.

H2: Employers will be less likely to offer health care benefits in areas with relatively large military communities.

I make similar hypotheses regarding the operation of military medical treatment facilities in an area:

H3: Areas where military communities have access to an MTF will have higher rates of medical uninsurance than areas without such facilities.

H4: Employers will be less likely to offer health care benefits in areas with MTFs.

H5: The effects of military communities on uninsurance will be larger in areas that contain an MTF than those that do not have such facilities.

DATA

Unless otherwise noted, all data come from the 2002 edition of the Department of Health and Human Services' *Area Resource File* (ARF). The ARF contains county-level variables on

health care professionals and infrastructure as well as socioeconomic and demographic variables, for multiple years. For most of the analyses, I aggregate each year of county data up to the Metropolitan Statistical Area (MSA) level. The decision to focus primarily on MSAs is driven by the availability of uninsurance and employer-offered health insurance data for multiple years, but also because the MSA is an appropriate unit of analysis for capturing both labor and health care market behavior. On the other hand, within MSAs, areas in close proximity to military installations may have stronger economic and residential ties to military communities than those that are further away. To avoid underestimating spillover effects, I therefore include a single-year analysis at the county level in California, North Carolina, and Texas. These states were selected because of the availability of uninsurance data, and because they are each home to several large military installations and large military communities.¹⁰

Dependent variables

I estimate the uninsurance rate as the percentage of persons below age 64 who do not have any health insurance. The denominator excludes persons in the armed forces or who receive health insurance or health care from the Departments of Defense or Veterans Affairs. MSA data come from the Bureau of Labor Statistics' March *Current Population Survey* (CPS). MSA definitions have undergone several changes since their introduction; to ensure comparability I limit my analysis to the years 1995-2000. County data are for 2000 and come from the following sources: the California Health Interview Survey (UCLA Center for Health Policy Research,

¹⁰ Unfortunately, the units of analysis preclude an examination of rural areas where the spillover effects of military communities and MTFs may be strongest. MSAs by definition exclude rural areas; uninsurance data were not available for California counties with fewer than 40,000 persons, so North Carolina and Texas counties below this size were excluded as well.

2001); “County-Level Estimates of the Uninsured in North Carolina, 1999-2001” (UNC Sheps Center for Health Services Research, 2002); and “Health Facts for Texas Counties” (Texas Department of State Health Services, 2001). Employer-offered health insurance measures the percent of civilian employees in an MSA whose employer offers health insurance benefits (whether or not the respondent was eligible for or received such coverage). Self-employed persons are excluded. These data are aggregated from the Robert Wood Johnson Foundation’s *Community Tracking Study*, for the years 1996, 1998, and 2000.

Independent variables

I examine the effects of two main independent variables. The first is the percentage of the non-active-duty population who are eligible for participation in the Tricare program. This measure may also be seen as a proxy for the non-active-duty portion of the military community. Tricare tracks enrollments only for the Tricare HMO program (*Tricare Prime*) so the measure includes military dependents, retirees, and survivors who register with the Defense Enrollment Eligibility Reporting System (DEERS) as a prerequisite for receiving care at MTFs or reimbursement for civilian-provided care. Once registered in DEERS, beneficiaries may choose to enroll in *Prime* or submit claims for care provided by contractors in the PPO network (*Tricare Extra*) or non-network providers.¹¹ Raw counts of active-duty dependents and military retirees and survivors were supplied to the author at the zip code level by the Department of Defense’s Defense Manpower Data Center, and were aggregated to the county and MSA levels. I

¹¹ Because they have different pattern of health care utilization, the effects of the military retiree and active duty dependent population were initially estimated separately. However, the strong association between the two variables (Pearson’s $r = .893$) introduced high levels of multicollinearity. Results were similar when either population was substituted for the entire Tricare population.

categorize MSAs by the presence of at least one *MTF* hospital or outpatient clinic through which Tricare members may receive health care or referrals to civilian providers. Because Tricare beneficiaries are likely to cross county lines to visit nearby MTFs, counties are considered to have access to an MTF if at least one zip code is included in an MTF catchment area. Zip codes were identified as within a catchment area using Tricare's *Catchment Area Directory*.

Control variables

I control for several demographic variables that may impact uninsurance rates (see for example Dranove, Simon, and White, 1998; Cunningham and Ginsburg, 2001): the relative size of both the Hispanic and black populations; the proportion of the population aged 65 and above; the total population size (transformed by its natural log); and a measure of urbanization. For counties, urbanization is measured by the Department of Agriculture's *Rural-Urban Continuum Codes for Metro and Nonmetro Counties* (where category 0 indicates a central county of a metropolitan area with at least one-million population, and category 8 indicates a rural county with no town or city larger than 2,500 persons). For MSAs, I measure the percentage of the MSA population residing in a category 0 urban area.

Socioeconomic variables include the percentage of persons with a college degree or better and median household income (in 2002 constant dollars, transformed by the natural log). Labor market indicators include the unemployment rate; the percentage of civilian employees who work in medium-(between 100 and 499 employees) and large-sized (500 or more employees) establishments (see Baker and Corts, 1996; Dranove, Simon, and White, 1998; Cunningham and Ginsburg, 2001); and the percentage of employees who work in the retail trade and manufacturing industries. Establishment size and industry data come from the Department of Commerce's *County Business Patterns* for various years. Many of the civilian jobs on military

bases are staffed by federal employees who participate in FEHBP. I therefore control for the number of federal employees as a percentage of the total labor force. Federal employee data come from the US Census Bureau, and are interpolated between 1990 and 2000.

Several studies link managed care penetration rates to lower rates of uninsurance, largely through their negative effect on health care costs (Cunningham and Ginsburg, 2001; see also Kronick and Gilmer, 1999; Chernew, Cutler, and Keenan, 2004). On the other hand, these cost savings do not necessarily occur system-wide. Providers' attempts to recoup lost revenues could increase costs patients in traditional indemnity plans and limit cost-shifting to cover indigent patients (see Baker and Corts, 1996; Litaker and Cebull, 2003; Cunningham, 1999; Cunningham et al., 1999; Marsteller et al., 1998). As a proxy for all managed care activity, HMO penetration measures the percentage of the population enrolled in HMO health insurance plans. The data are from InterStudy.

The availability of public health insurance programs such as Medicaid should reduce uninsurance and may "crowd out" some employer-based insurance (Cutler and Gruber, 1996; Marsteller et al., 1998; Cunningham and Ginsburg, 2001). Although the receipt of federal Medicaid funds mandates coverage for some populations (such as low-income families with children, SSI recipients, and infants born to Medicaid eligible pregnant women), other groups of the "categorically needy" are covered at the discretion of state Medicaid agencies (e.g., the age limit for children or maximum family income level may be raised). I therefore measure the state-level ratio of Medicaid recipients to the number of individuals in poverty as a proxy for the scope of coverage.

Finally, high premium costs are associated with higher probabilities of being uninsured, while some of the increase in uninsurance rates has been linked to increased premium costs over

time (Cunningham and Ginsburg, 2001; Chernew, Cutler, and Keenan, 2004). Time-series data on premium costs are unavailable at the MSA level, so instead I use state-level per capita personal health care costs as a proxy. The variable is measured in constant 2002 dollars, and is transformed by the natural log. Some endogeneity exists between the dependent variables and health care costs. High health care costs may encourage more people to purchase insurance even at higher premium rates, while prompting employers to limit health care benefits or reduce their contributions to employees' premiums. At the same time, cost-motivated changes in insurance take-up behavior could further affect prices. I therefore lag the measure of personal health care costs by one year. Table 2 presents summary statistics for all variables examined.¹²

[Table 2 about here]

METHODS

For the models predicting uninsurance, the CPS data are limited to 189 MSAs, while employer-offered health insurance data are only available for 42 MSAs. To increase the number of cases for analysis, I pool all of the available data-years. All models were initially estimated using ordinary least squares regression (OLS) with robust standard errors (clustered around the unit of analysis) and year and Census region dummy variables. Based on the results of LaGrangian multiplier tests, random effects regression is used for models predicting uninsurance

¹² In addition to the above variables, the models initially included measures of the population aged 20 and below and the percentage of persons below the federal poverty line. These were subsequently dropped to due concerns over high multicollinearity. The poverty rate was positively related to uninsurance, but including either of these variables separately or together did not change the observed effect of Tricare populations or MTFs.

at the MSA-level.¹³ To test hypothesis H5, I include an interaction variable that multiplies the size of the Tricare population by the MTF dummy variable. This introduced high levels of multicollinearity, particularly in the smaller-*n* models predicting employer-offered health benefits and county-level uninsurance. The interaction effect is therefore only measured for MSA-level uninsurance rates. The direction and significance of the results should be interpreted cautiously.

To control for unobserved but durable differences across MSAs that could bias the estimates, additionally I use OLS to estimate first-difference models of uninsurance rates by the one-year change and one-year lag of each independent variable and by a one-year lag of the dependent variable. Unfortunately, the large number of estimated parameters and the small number of cases prevent first-difference models of employer-offered health insurance. Because the closing or realignment of military installations occurs only sporadically and therefore produces few non-zero data points, I measure the loss of an MTF dichotomously. For each year, an MSA is coded with a 1 if it had fewer MTFs than in 1995, and a 0 otherwise.

RESULTS

Tables 3 and 4 show the bivariate relationship between military communities, MTFs, and health care safety-net environments at the MSA-level. The results in Table 3 give mild support for hypotheses H1 and H2. MSAs with proportionally large numbers of military dependents and retirees tend to have large uninsured populations (though this relationship is only significant

¹³ A Hausman test indicated that the coefficients for the random effects models did not vary systematically from those obtained using a fixed effects specification. Fixed effects results are therefore not reported.

below the .10 level), and considerably fewer workers whose employers offer health insurance. As Table 4 indicates however, metropolitan areas with at least one MTF have about 14 percent more uninsured persons, and 0.9 percent fewer workers whose employers offer health benefits (though the difference in the latter variable is not significant). The relationship between the size of the Tricare population and the civilian uninsurance rate is stronger at the county-level in California, North Carolina and Texas ($r = .529$, $p < .001$), but uninsurance rates in counties with access to at least one MTF are not significantly different than counties with no such facilities (county results not shown). Hypothesis H3 thus receives mixed support, while H4 receives none.

[Table 3 about here]

[Table 4 about here]

The bivariate results may be spurious, particularly given the associations between military communities and predictors of uninsurance such as median income, the size of the retail and manufacturing employment sectors, and the proportion of workers in small and medium-sized firms. They may also reflect the peculiarities of historical military basing decisions and retirees' geographic preferences. As Table 5 shows, southern and western states have the largest concentrations of military dependents and retirees, the highest uninsurance rates, and the lowest rates of workers whose employers offer health benefits.

[Table 5 about here]

Table 6 presents multivariate regression results for models estimating uninsurance rates at the MSA- and county-levels. The models explain at least 78 percent of the variation in uninsurance rates in the MSA sample, and 92 percent for the counties. Model 1 estimates MSA-level civilian uninsurance rates without measures of socioeconomic and labor force conditions that military communities may influence; Model 2 estimates the full model, including socioeconomic and labor force variables; Model 3 is the full model for the California, North Carolina, and Texas counties; Model 4 estimates MSA-level uninsurance rates with an interaction term between the Tricare population and the presence or absence of an MTF.

[Table 6 about here]

Model 1 lends additional support for hypothesis H1; on average, a one percentage point increase in the Tricare population raises the estimated uninsurance rate by just under one-seventh of a percentage point. A one standard deviation (*s.d.*) increase produces a smaller change in uninsurance than comparable increases in the median income level, the HMO penetration rate, the federal proportion of the labor force, or the size of the Hispanic population, but is similar in magnitude to a one *s.d.* change in the elderly population. As Models 2 and 3 indicate, the effect of the Tricare population obtains even when controlling for socioeconomic and labor market factors associated with both uninsurance rates and the size of military communities; large military communities increase estimated civilian uninsurance rates net of any effect they may have on the composition of local employment sectors and firm sizes, on unemployment rates, and on income levels. Additionally, because of the controls for Census regions, we can exclude the possibility that the results are due to concentration of military bases in the South and West.

The effect of the Tricare population is much stronger at the county-level (coefficients for the Tricare population do not significantly differ between Models 1 and 2). On average, a one percentage point increase in the county Tricare population in California, Texas, or North Carolina increases uninsurance by over half a percentage point.

Hypothesis H3 – that uninsurance is higher in areas with military treatment facilities – is unsupported, at either the county or MSA levels. However, Model 4 suggests that the marginal effect of military communities on uninsurance is weaker in metropolitan areas with at least one MTF, in contradiction to hypothesis H5. In an MSA with no military medical facility, a one percentage point increase in the Tricare population raises estimates of uninsurance by more than three-quarters of a percentage point, compared to only about one-sixth of a percentage point in areas with an MTF. However, the coefficient for the interaction effect is not significant, and the significance of the Tricare coefficient is greatly reduced (perhaps due to multicollinearity). Moreover, the coefficient for MTF is itself positive and significant, indicating higher overall levels of uninsurance in military areas. The relationship between military communities and uninsurance rates in different types of communities is therefore inconclusive.

The results from Table 6 suggest that the military's impact on the development of local labor markets do not entirely account for their effect on uninsurance rates. Table 7 investigates the possibility that military communities contribute to uninsurance by reducing employers' tendencies to offer health benefits to their workers. Again, the results indicate an effect of the size of military communities that cannot be accounted for by their impact on the composition of local employment sectors, on firm sizes, unemployment, or incomes levels. Supporting hypothesis H2, a one SD increase in the Tricare population reduces the estimated percentage of workers whose employers offer health insurance by about 0.9 percentage points. This is similar

in magnitude to the effects of the elderly population, the federal proportion of the labor force, and the size of the retail sector, but less than three-quarters the amount of comparable increases in the black and Hispanic populations and the unemployment rate, and less than half the effect of the median income level and populations size. On average, military communities are significant, but not major, influences on rates of employer-offered health benefits. In Model 1, the presence of an MTF increases estimates of uninsurance by about 1.4 percentage points, but this effect is mediated by socioeconomic and labor market controls in Model 2. The results support hypothesis H4 only to the extent that military installations stimulate employment and earnings patterns that discourage employers from offering health benefits.

[Table 7 about here]

Finally, first-difference models in Table 8 remove any biases introduced by durable MSA characteristics that the Census region dummy variables do not capture. While the magnitudes of the coefficients are difficult to interpret, the directions generally match those observed Table 6. Uninsurance rates grew fastest where Tricare populations increased and where Tricare populations were large in the previous year, net of the change in overall population. Conversely, in the case of the 30 percent of the MSAs that saw a decline in their Tricare populations between 1995 and 2000, the rate at which uninsurance grew was slowed. The closure of an MTF, however, had no measurable effect on the growth of uninsurance.

[Table 8 about here]

DISCUSSION

Compared to the welfare states of other advanced, industrialized, capitalist democracies, the American welfare state is characterized by a diversity of administrative strategies through which it pursues social welfare goals and reduces demands for public social provision. To a greater extent than elsewhere, contributory social insurance and needs-based, means-tested public assistance programs are supplemented by private retirement expenditures, tax-subsidized employment-based health and retirement benefits, and income transfers that occur through the tax-code. Moreover, the state's actions in non-welfare policy domains regulate social and labor market conditions that contribute to demands for public social welfare efforts.

The personnel component of national defense efforts is a case in point. As discussed above, in the US, states with more military personnel have lower unemployment rates and spend less on public assistance on average. If we think of military basing decisions as exogenous to market conditions then it is likely that military personnel have some positive spillover effects on local economies. However, it should not be immediately assumed that reductions in determinants of demand for social spending are uniform. It is possible that as a labor market intervention, military personnel policies reduce eligibility for social programs that are tied to employment status, but do not necessarily reduce economic hardships, and may in fact exacerbate pressures for state intervention in other areas.

Following this insight, this study sought to explore how within this fragmented system of public social provision – in particular, given the absence of national health insurance – the MHS and the demographic and socioeconomic characteristics of military communities impact the environments within which local health care safety-nets operate. The results of this analysis suggest that relatively large numbers of military dependents and retirees place pressures on

safety-net arrangements by exacerbating uninsurance rates and undermining employers' willingness or ability to offer health care benefits to workers. In spite of the fact that military medical facilities themselves only impacted the dependent variables in the county level analysis – and only indirectly, through their effects on socioeconomic and labor market conditions – the results provide evidence of a relationship between military infrastructures and health care safety-net environments. Uninsurance rates were higher overall in areas with MTFs and large military communities, and the relationship to military communities was strongest at the county-level. Future studies should focus closely on those areas adjacent to large military bases, preferably on cities with substantial commercial and residential ties to military communities compared to nearby cities with weaker ties.

With the data available, it is difficult to assess how much of the results reflect the effects of military communities on labor markets, and how much is due to the provision of military health benefits. While it was expected that some of the cross-sectional variation in uninsurance and employer-offered benefits was explainable by the types of industrial sectors that tend to concentrate around military bases, at the MSA level, the effects of military communities persisted with the inclusion of these variables. The same was true of other social and labor market measures such as the unemployment rate and household income.

Exploring whether military health insurance plans crowd out private insurance and thereby drive up the costs of employer-based insurance premiums may therefore prove fruitful. For example, regardless of their industry, employers may perceive diminished advantages to offering health benefits as hiring and retention incentives when a large portion of the labor supply already obtain these from the Department of Defense. Moreover, when employee health benefits are available, low take-up by Tricare members may reduce employers' ability to

negotiate prices with insurers (particularly those with fewer employees). This could dissuade civilian employees with no access to Tricare from participating in plans.

The results provide little evidence that competition from low-cost MTFs result in either greater uninsurance or less employer-based health insurance. Given that the availability of Tricare managed care options is related to the presence of an MTF catchment area, the types of health plans in which dependents and retirees may enroll do not seem to be a factor in uninsurance. Moreover, it is still possible that utilization of the MHS could shrink the pool of paying patients, and thereby strain providers' ability to cost-shift care for the poor and uninsured. Future studies should focus closely on dependents' and retirees' utilization of both MTF and civilian providers, on enrollments patterns in the Tricare *Prime* and *Extra* programs, and on direct measures of civilian providers' cost-shifting practices.

The results of this study suggest that increased burdens on public and non-profit health care safety-net providers mitigate some of the local economic benefits of stable military communities. Thus some of the larger systemic disadvantages of high uninsurance rates in some areas are attributable to political and strategic decisions about where military personnel serve and how they are compensated with health care benefits. In this respect, the some of the burdens of national security policies are inequitably distributed. For the average civilian living in an area with a large military community, higher uninsurance rates could translate into higher tax burdens as local governments struggle to retain existing medical resources and ensure access to care for the poor. Insured civilian patients may encounter longer waiting times for medical appointments and increased health care costs and insurance premiums as practitioners seek to recoup charity care losses. Poor and uninsured patients may have greater difficulties finding sources of non-emergency care, and face increased risks of further financial hardships if financially-stressed

providers become less willing to forgo payment for care.¹⁴ Overall, entire communities may live with greater public health risks. Understanding these patterns, policy-makers may consider the feasibility of extending financial aid grants for health care providers in areas with large military communities, similar to the way in which the Department of Education currently provides “impact aid” to public school districts that educate large numbers of children of military personnel. This could possibly occur through direct payments to providers, or through increased Medicaid reimbursement amounts.

On the other hand, many areas with a large military presence were already unintentionally assisted by personnel reductions and base closures in the 1990s that slowed the growth rate of uninsurance.¹⁵ It is not clear, however, that these improvements will continue if Congress enacts the May 2005 BRAC proposal to close or realign 300 installations and facilities. If approved, 22 counties would lose at least 1,000 active duty personnel, a median net loss of 3.6 percent of their total populations (including the loss of dependents; author’s calculations). But because closures and realignments are proposed without any reductions in military forces, personnel (and their families) would be consolidated onto remaining installations, primarily in 18 western and southern counties; these could expect a median net population gain of about three percent. Moreover, continued combat operations abroad and the sustained mobilization of

¹⁴ See, for example, Jonathan Cohn’s article, “Uncharitable” (*New York Times Magazine* December 19, 2004). Cohn documents an increasing tendency among non-profit hospitals to attempt payment collection from, and even litigate against, poor and uninsured patients with unpaid health care bills.

¹⁵ It is important to remember, however that demobilization restricted an important avenue for obtaining health care and insurance for some groups that disproportionately rely on the military as a labor market option (working-class African-American breadwinners, for example). Additionally, the closure of MTFs required remaining retirees to rely on more expensive civilian providers, or travel greater distances to receive military health care.

reserve personnel may result in pressures to increase the numbers of active duty military personnel, and relocate additional personnel from bases in South Korea and Germany back to the United States. Assuming that new recruits would exhibit similar marriage and family-rearing patterns as existing personnel, changes such as these would likely add to the populations of existing military communities, and therefore further exacerbate the pressures already faced by local health care safety-nets.

REFERENCES

- Baker, Laurence C and Kenneth S. Corts. 1996. "HMO Penetration and the Cost of Health Care: Market Discipline or Market Segmentation?" *American Economic Review*. 86(2):389-394
- Baxter, Raymond J. and Rachel L. Feldman. 1999. "Staying in the Game: Health System Change Challenges for the Poor". Center for Studying Health System Change Research Report No. 3.
- Baxter, Raymond J. and Robert E. Mechanic. 1997. "The Status of Health Care Safety-nets." *Health Affairs*. July/August:7-23.
- Booth, Bradford. 2003. "Contextual Effects of Military Presence on Women's Earnings." *Armed Forces & Society*. 30(1):25-52.
- Booth, Bradford, William W. Falk, David R. Segal, and Mady Wechsler Segal. 2000. "The Impact of Military Presence in Local Labor Markets on the Employment of Women". *Gender and Society*. 14(2):318-332.
- Chernew, Michael, David Cutler, and Patricia S. Keenan. 2004. "Increasing Health Insurance Costs and the Decline in Insurance Coverage." ERIU Working Paper No. 8.
- Cunningham, Peter J. 1999. "Pressures on Safety-net Access: the Level of Managed Care Penetration and Uninsurance Rate in a Community (A Memorial to Alice Hersh)." *Health Services Research*. 3(1):255-270.
- Cunningham, Peter J. and Paul B. Ginsburg. 2001. "What Accounts for Differences in Uninsurance Rates Across Communities?" *Inquiry*. 38:6-21.
- Cunningham, Peter J., Joy M. Grossman, Robert F. St. Peter, Cara S. Lesser. 1999. "Managed Care and Physicians Provision of Charity Care." *Journal of the American Medical Association*. 281(12):1087-1092.
- Cunningham, Peter J. and Peter Kemper. 1998. "Ability to Obtain Medical Care for the Uninsured: How Much Does It Vary Across Communities?" *Journal of the American Medical Association*. 280(10):921-927.
- Cutler, David M. and Jonathan Gruber. 1996. "Does Public Insurance Crowd Out Private Insurance?" *The Quarterly Journal of Economics*. 111(2):391-430.
- Dranove, David, Carol J. Simon, and William D. White. 1998 "Determinants of Managed Care Penetration." *Journal of Health Economics*. 17:729-745.

- Ferrell, Henry C. Jr. 1997. "Guns for Vermont: Military Land Acquisition in the 1920s." *The Journal of Military History*. 61(1):31-47.
- Gifford, Brian. 2003. *States, Soldiers, and Social Welfare: Military Personnel and the Welfare State in the Advanced Industrial Democracies*. PhD Dissertation. New York University.
- Gilbert, Neil. 2004. *Transformation of the Welfare State: The Silent Surrender of Public Responsibility*. New York: Oxford University Press.
- Hacker, Jacob S. 2002. *The Divided Welfare State: The Battle Over Public and Private Social Benefits in the United States*. New York: Cambridge University Press.
- Harrell, Margaret C. 2000. *Invisible Women: Junior Enlisted Army Wives*. Santa Monica, CA: RAND.
- Harrell, Margaret C., Nelson Lim, Laura Werber Castaneda, and Daniela Golinelli. 2004. *Working Around the Military: Challenges to Military Spouse Employment and Education*. Santa Monica, CA: RAND.
- Hefner, Frank L. 1992. "A Note on the Regional Impact of Military Retirees." *Armed Forces & Society*. 18(3):407-414.
- Hicks, Louis and Curt Raney. 2003. "The Social Impact of Military Growth in St. Mary's County, Maryland, 1940-1995." *Armed Forces & Society*. 29(3):353-371.
- Hosek, Susan D., Bruce W. Bennett, Joan Buchanan, M. Susan Marquis, Kimberly A. McGuigan, Janet M. Hanley, Rodger Madison, Afshin Rastegar, Jennifer Hawes-Dawson. 1995. *The Demand for Military Health Care: Supporting Research for a Comprehensive Study of the Military Health Care System*. Santa Monica, CA: RAND.
- Howard, Christopher. 1997. *The Hidden Welfare State: Tax Expenditures and Social Policy in the United States*. Princeton, NJ: Princeton University Press.
- Institute of Medicine, Committee on the Consequences of Uninsurance, Board on Health Care Services. 2003. *A Shared Destiny: Community Effects of Uninsurance*. Washington, DC: National Academies Press.
- InterStudy. Various Years. *HMO County Surveyor*. Computer file. <http://www.interstudypublications.com>.
- Jackson Charles L. and Frederick A. Day. 1993. "Locational Concentrations of Military Retirees in the United States." *Professional Geographer*. 45(1):55-65.

- Kalleberg, Arne, Barbara F. Reskin, and Ken Hudson. 2000. "Bad Jobs in America: Standard and Non-Standard Employment Relations and Job Quality in the United States." *American Sociological Review*. 65(2):256-278.
- Kronick, Richard and Todd Gilmer. 1999. "Explaining the Decline in Health Insurance Coverage, 1979-1995." *Health Affairs*. 18(2):30-47.
- Lipson, Debra J. and Naomi Naierman. 1996. "Effects of Health System Changes on Safety-Net Providers". *Health Affairs*. 15(2):33-48.
- Litaker, David and Randall D. Cebull. 2003. "Managed Care Penetration, Insurance Status, and Access to Health Care". *Medical Care*. 41(9):1086-1095.
- Lutz, Catherine. 2001. *Homefront : A Military City and the American Twentieth Century*. Boston: Beacon Press.
- Markusen, Ann, Peter Hall, Scott Campbell, and Sabina Deitrick. 1991. *The Rise of the Gunbelt: The Military Remapping of Industrial America*. New York: Oxford University Press.
- Marsteller, Jill A., Len M. Nichols, Adam Badawi, Bethany Kessler, Shruti Rajan, and Stephen Zuckerman. 1998. "Variations in the Uninsured: State and County Level Analyses." *The Urban Institute*.
- Payne, Deborah M., John T. Warner, and Roger D. Little. 1992. "Tied Migration and Returns to Human Capital: The Case of Military Wives." *Social Science Quarterly*. 73(2):324-339.
- Poppert, Patrick E. and Henry W. Herzog, Jr. 2003. "Force Reduction, Base Closure, and the Indirect Effects of Military installations on Local Employment Growth." *Journal of Regional Science*. 43(3):459-481.
- Robert Wood Johnson Foundation, Center for Studying Health System Change. Various years. *Community Tracking Study Household Survey*. Computer file. <http://www.hschange.org/>
- Schwartz, J. Brad, Lisa L. Wood, and Janet D. Griffith. 1991. "The Impact of Military Life on Spouse Labor Force Outcomes". *Armed Forces & Society*. 17(3):385-407.
- Schwartz-Nobel, Loretta. 2002. *Growing Up Empty: The Hunger Epidemic in America*. New York: Harper Collins.
- Shi, Leiyu. 2000. "Vulnerable Populations and Health Insurance." *Medical Care Research and Review*. 57(1):110-134.
- Snyder, William P. 1994. "Military Retirees: A Portrait of the Community." *Armed Forces & Society*. 20(4):581-598.

- Terner, Ian Donald. 1965. "The Economic Impact of Military Installations on the Surrounding Area: A Case Study of Fort Devens and Ayer, Massachusetts". Research Report to the Federal Reserve Bank of Boston, No. 30.
- Texas Department of State Health Services, Center for Health Statistics. 2001. "2001 Health Facts for Texas Counties." <http://www.tdh.state.tx.us/dpa/CFSWEB.HTM>
- UCLA Center for Health Policy Research. 2001. "California Health Interview Survey." <http://www.healthpolicy.ucla.edu/shic-county.html>
- UNC Chapel Hill, Cecil G. Sheps Center for Health Services Research. 2002. "County-Level Estimates of the Uninsured in North Carolina, 1999-2001." <http://www.shepscenter.unc.edu/new/countylevel1.htm>
- US Census Bureau. 2004. *Income, Poverty, and Health Insurance Coverage in the United States: 2003*.
- US Department of Commerce. Various Years. *County Business Patterns*.
- US Department of Defense. Various Years. *Selected Manpower Statistics*.
- US Department of Defense. 1997. *Selected Medical Care Statistics*.
- US Department of Defense. 2002. *Population Representation in the Military Services, Fiscal Year 2002*.
- US Department of Defense. 2005. *Tricare Catchment Area Directory*. <http://www.tricare.osd.mil>
- US Department of Defense, Office of the Actuary. Various years. *Statistical Report on the Military Retirement System*. Washington, DC.
- US Department of Health and Human Services, Bureau of Health Professions. 2002. *Area Resource File*. Computer file. <http://www.arfsys.com>.
- Western, Bruce, and Katherine Beckett. 1999. "How Unregulated is the U.S. Labor Market? The Penal System as a Labor Market Institution". *American Journal of Sociology*. 104(4):1030-1060.
- Zwanziger, Jack, Richard L. Kravitz, Susan D. Hosek, Kevin Hart, Elizabeth M. Sloss, Oreer Sullivan, Joel D. Kallich, and Dana Goldman. 2000. "Providing Managed Care Options for a Large Population: Evaluating the CHAMPUS Reform Initiative." *Military Medicine*. 165(5):403-410.

Table 1: Top twenty MSAs, by number of active-duty personnel, dependents and military retirees, and by percentage of total population. 1995-2000 averages.

Ranked by percent			Ranked by number		
1	Jacksonville, NC ^a	58.2%	1	Wash. DC-Baltimore, MD	375,306
2	Fayetteville, NC	45.7%	2	San Diego, CA	290,979
3	Killeen-Temple, TX ^a	42.2%	3	Norfolk-Virginia Beach, VA	288,842
4	Lawton, OK ^a	41.7%	4	Seattle-Tacoma, WA	199,876
5	Fort Walton Beach, FL	37.4%	5	Los Angeles, CA	176,962
6	Clarksville, TN	36.8%	6	San Antonio, TX	153,835
7	Colorado Springs, CO	23.1%	7	Fayetteville, NC	131,249
8	Columbus, GA	22.3%	8	Killeen-Temple, TX ^a	126,581
9	Sumter, SC ^a	19.5%	9	Honolulu, HI	120,198
10	Norfolk-Virginia Beach, VA	18.6%	10	Colorado Springs, CO	112,478
11	Great Falls, MT ^a	17.2%	11	Jacksonville, FL	104,416
12	Panama City, FL	17.2%	12	San Francisco-Oakland, CA	89,384
13	Cheyenne, WY ^a	16.8%	13	Jacksonville, NC ^a	83,934
14	Wichita Falls, TX ^a	16.2%	14	Clarksville, TN	72,521
15	Goldsboro, NC ^a	16.1%	15	New York-Northern NJ	64,274
16	Pensacola, FL	15.3%	16	Fort Walton Beach, FL	62,720
17	Abilene, TX ^a	15.1%	17	Columbus, GA	60,754
18	Honolulu, HI	13.8%	18	Pensacola, FL	60,534
19	Anchorage, AK ^a	13.6%	19	Chicago, IL	60,405
20	Dover, DE	13.4%	20	Dallas-Fort Worth, TX	60,099

^a Not included in uninsurance models

Sources: Department of Defense, *Selected Manpower Statistics*; Defense Manpower Data Center

Table 2: Summary Statistics

	MSAs, 1995-2000		CA, NC, and TX Counties, 2000	
	Mean	SD	Mean	SD
% Uninsured	17.6	8.45	20.0	7.24
Employer-offered health insurance, as % of employed ⁽ⁿ⁼¹²⁶⁾	88.3	3.58		
Tricare %	2.75	4.80	2.77	5.98
Military Treatment Facility	.335	.472	.257	.439
HMO Penetration	19.7	11.7	18.5	15.2
Federal Emp. as % of LF	2.69	1.94	1.81	1.34
% Black	11.4	10.1	12.1	11.4
% Hispanic	9.93	16.3	16.6	20.5
% Over age 64	13.0	3.81	12.2	3.30
% College	22.5	5.96	20.1	9.31
Median Household Income (\$\$2002)	42,560	6,512	39,625	9,834
Median Household Income (\$\$2002) (log)	10.6	.156	10.6	.233
Unemployment rate	4.94	3.14	5.12	3.73
Retail %	19.0	4.67	20.3	4.69
Manufacturing %	16.2	7.61	21.3	12.94
% of workers in firms w/ 100-499 employees	25.4	3.22	24.5	5.62
% of workers in firms w 500+ employees	16.6	5.31	12.9	7.88
Population (1,000s)	1,075	2,137	353	880
Population (1,000s) (log)	6.25	1.05	5.00	1.10
% Urban (Rural/Urban category)	16.9	34.1	2.8	2.1
Medicaid as % of poverty	75.5	20.6		
State per capita health expenditures (<i>t</i> -1)	3,979	456		
Per capita health expenditures (log)	8.28	.112		
<i>n</i>		1,131		167

Table 3: Pearson's *r* correlations, MSA level variables, averaged over 1995-2000

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)
(1) Uninsurance	1.0																			
(2) Employer-health ben.	-.64*	1.0																		
(3) Tricare %	.13+	-.33*	1.0																	
(4) Federal emps.	.12+	-.12	.77*	1.0																
(5) HMO pene.	-.18*	-.01	-.05	-.02	1.0															
(6) Black %	.04	-.16	.25*	.27*	-.15*	1.0														
(7) Hispanic %	.71*	-.62*	.02	.13*	.09	-.23*	1.0													
(8) % over 65	-.04	.03	-.25*	-.30*	-.02	-.17*	-.21*	1.0												
(9) College %	-.27*	.36*	-.10+	.05	.23*	-.04	-.11+	-.31*	1.0											
(10) HH income	-.49*	.45*	-.15*	-.05	.43*	-.14*	-.24*	-.19*	.61*	1.0										
(11) Unemployment	.53*	-.52*	-.01	.05	.02	-.06	.55*	.03	-.49*	-.44*	1.0									
(12) Retail %	.39*	-.18	.35*	.31*	-.25*	-.10+	.21*	.16*	-.11*	-.52*	.30*	1.0								
(13) Manuf. %	-.37*	.29+	-.19*	-.32*	-.09	.01	-.28*	.02	-.35*	.00	-.07	-.41*	1.0							
(14) <100 emps	.43*	-.31*	.19*	.22*	-.21*	-.17*	.29*	.06	-.07	-.39*	.37*	.77*	-.48*	1.0						
(15) >99, <500 emps.	-.31*	.46*	-.24*	-.24*	.21*	.08	-.20*	.01	-.09	.22*	-.17*	-.49*	.40*	-.59*	1.0					
(16) >499 emps	-.36*	.09	-.08	-.12*	.13*	.16*	-.24*	-.08	.14*	.34*	-.35*	-.64*	.33*	-.86*	.10	1.0				
(17) population	.06	-.22	-.08	.01	.38*	.09	.12*	-.09	.23*	.39*	-.03	-.36*	-.10+	-.21*	.15*	.17*	1.0			
(18) % urban	-.02	.07	-.07	.03	.49*	.12	.08	-.11+	.25*	.40*	-.10*	-.37*	-.14*	-.27*	.23*	.19*	.66*	1.0		
(19) Medicaid	-.40*	.28+	-.13*	-.11+	.35*	-.27*	-.14*	.00	.09	.32*	.03	-.11+	.13*	-.05	.15*	-.04	.11+	.07	1.0	
(20) Per cap health \$	-.34*	.14	-.14*	-.20*	.30*	-.09	-.25*	.41*	.01	.12*	-.09	-.07	.07	-.23*	.26*	.12*	.13*	.09	.41*	1.0

+ p<=.10; * p<=.05

Employer offered health benefits averaged for 1996, 1998, and 2000

Employer-offered health benefits: n=42; all others: n= 189

Table 4: T-Test for difference of means

	At least 1 MTF	No MTFs
% Uninsured	19.2* (6.43)	16.8 (7.10)
Employer-offered health insurance	87.9 (3.58)	88.7 (3.50)
Tricare %	6.24** (7.05)	.985 (.753)

**Difference is significant $\leq .01$

* Difference is significant $\leq .05$

Table 5: One-way ANOVA tests for equal means by region. MSAs, 1995-2000

	Tricare %	% Uninsured	Employer-offered health %
Northeast	1.02	11.1	88.7
Midwest	.910	12.3	90.8
South	4.11	20.7	87.2
West	3.08	21.1	87.4
F	5.78	38.3	3.34
<i>p</i>	.001	.000	.030
<i>n</i>	189	189	42

Table 6: Multivariate regression results predicting MSA and county level uninsurance rates, 1995-2000. Standard errors in parentheses.

	(1)	(2)	(3)	(4)
Tricare %	.155* (.077)	.174* (.078)	.581* (.113)	.727+ (.419)
Military Treatment Facility	.802 (.746)	1.08 (.744)	-.027 (.629)	1.74* (.893)
Tricare % x MTF				-.559 (.419)
Federal Emp. as % of labor force	-.427* (.194)	-.506** (.193)	-.290 (.138)	-.514** (.192)
HMO Penetration	-.075* (.030)	-.070* (.030)	-.038 (.057)	-.069* (.030)
% Black	.095** (.036)	.057 (.038)	.050 (.024)	.059 (.038)
% Hispanic	.251** (.020)	.196** (.024)	.131** (.012)	.204** (.025)
% Over age 64	.334** (.089)	.188* (.094)	.003 (.118)	.178* (.090)
% College	-.092+ (.052)	.041 (.071)	-.012 (.045)	.027 (.071)
Median Household Income (\$\$2002) (log)		-7.55** (2.87)	-8.07+ (1.94)	-7.34* (2.87)
Unemployment rate		.220+ (.121)	-.014 (.131)	.162 (.133)
Retail %		-.047 (.144)	-.101 (.062)	.037 (.144)
Manufacturing %		-.054 (.046)	.027 (.042)	-.005 (.047)
% of emps. in firms w/ 100-499 employees		-.062 (.099)	-.042 (.070)	-.014 (.099)
% of emps. in firms w 500+ employees		-.073 (.063)	-.078 (.074)	-.074 (.065)
Population (1,000s) (log)	.065 (.425)	.684 (.490)	.565 (.548)	.703 (.489)
% Urban	.009 (.012)	.006 (.011)	.025 (.159)	.005 (.011)
Medicaid as % of poverty	-.028* (.012)	-.027* (.012)		-.026* (.013)
Per capita health expenditures (log)	4.33 (3.97)	1.31 (4.03)		2.26 (4.04)
Constant	-6.91 (32.9)	104* (46.4)	98.5* (21.4)	97.9 (45.7)
N	1,131	1,131	167	1,131
R ² (between)	.779	.790	.920	.791
DV Mean	17.6	17.6	20.0	17.6

+ significant at 10%; * significant at 5%; ** significant at 1%

OLS coefficients for Model 3; random effects coefficients for all others

Model 3 includes dummies for TX and NC; all others include dummies for year and region

Table 7: Multivariate regression results predicting the percentage of workers whose employers offer health insurance, 1996, 1998, 2000. Standard errors in parentheses.

	(1)	(2)
Tricare %	-.146* (.064)	-.186** (.043)
Military Treatment Facility	1.44+ (.843)	1.03 (.682)
Federal Emp. as % of labor force	.247 (.161)	.479** (.129)
HMO Penetration	.027 (.035)	-.021 (.022)
% Black	-.148** (.051)	-.131** (.045)
% Hispanic	-.180** (.053)	-.076* (.037)
% Over age 64	.031 (.109)	.247* (.092)
% College	.096 (.074)	-.200 (.148)
Median Household Income (\$\$2002) (log)		19.4** (5.68)
Unemployment rate		-.402* (.178)
Retail %		-.215+ (.108)
Manufacturing %		.049 (.048)
% of emps. in firms w/ 100-499 employees		.280+ (.147)
% of emps. in firms w 500+ employees		.095 (.074)
Population (1,000s) (log)	.152 (.681)	-1.83** (.423)
% Urban	-.003 (.015)	.004 (.009)
Medicaid as % of poverty	-.005 (.017)	.002 (.016)
Per capita health expenditures (log)	-4.88 (7.29)	1.55 (5.65)
Constant	128* (61.0)	-122 (79.8)
N	126	126
R ²	.540	.690
DV Mean	88.3	88.3

+ significant at 10%; * significant at 5%; ** significant at 1%

Table 8: First-Difference Models predicting one-year change in percent uninsured. MSAs, 1996-2000. Robust Standard Errors in parentheses.

Δ Tricare %	1.33* (.558)
Lost MTF over 5 years	-.102
(<i>t</i> -1) Tricare %	.165** (.061)
Military Treatment Facility	.371 (.505)
N	945
R ²	.370
DV Mean	-.108

* significant at 5%; ** significant at 1%

Control variables (not shown) are those used Table 6, Model 2, differenced and at *t*-1.