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# ACQUISITION RESEARCH PROGRAM Sponsored report series

# Financial and Labor Market Impacts of a Servicemember's PCS on Spouses

March 2024

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Department of Defense Management

Naval Postgraduate School

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Prepared for the Naval Postgraduate School, Monterey, CA 93943.

Disclaimer: The views expressed are those of the author(s) and do not reflect the official policy or position of the Naval Postgraduate School, US Navy, Department of Defense, or the US government.



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## ABSTRACT

This study investigates how frequent relocations due to Permanent Change of Station (PCS) orders and occupational licensing requirements affect military spouse labor market outcomes. Around 400,000 service members execute a PCS annually, and a significant fraction conduct their PCS with their spouse and families. These frequent relocations can be disruptive for the employment and human capital development of military spouses. Using the 2019 Active Duty Spouse Survey, I do not find PCS to be a significant determinant of military spouse employment and contributions to family income. In contrast, having a new license required in their current duty station significantly increases spouse unemployment and makes full-time work less likely. I also find that spouses with professions in health care, education or administrative sectors are more likely to be working part-time. Turning to state occupational licensing data, I document that spouses with occupations in these heavily regulated professions in Navy FCAs are most likely to be unemployed or employed part-time. Recommendations include more targeted assistance to spouses in these affected professions.



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# LIST OF ACRONYMS AND ABBREVIATIONS

ACS	American Community Survey
ADSS	Active-Duty Spouse Survey
BLS	Bureau of Labor Statistics
DPAC	Defense Personnel Analytics Center
FCA	fleet concentrated area
ILRR	Industrial & Labor Relations Review
IPUMS	Integrated Public Use Microdata Series
MILPERSMAN	Naval Military Personnel Manual
NAVADMIN	Naval Administrative Message
NDAA	National Defense Authorization Act
O*NET	Occupational Information Network
OPA	Office of People Analytics
PCS	permanent change of station
PDE	Person Data Environment
SCRA	Servicemembers Civil Relief Act
SECO	Spouse Education and Career Opportunities
TEMDU	temporary duty
U.S.	United States



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# I. INTRODUCTION

#### A. OVERVIEW

When an individual makes the decision to join the military, they accept the fact there will be massive changes in their life regardless of how long they chose to serve. One of the major changes that remains inevitable is frequent moves to various parts of the country, even the world. According to Military OneSource (2023b), an online government resource for servicemembers and their families, it is estimated that 400,000 military personnel execute a permanent change of station (PCS) each year. These moves cause major disruptions for servicemembers and their families and require substantial funding from the government. From finding housing, temporary lodging, packing the house away, and traveling for days on end, the logistical concerns alone are enough to provoke anxiety. A key stressor for families who execute frequent PCSs is the lack of continuity in their lives, whether that is the ability to keep children in school or spouses finding meaningful employment. These frequent disruptions in employment for spouses can lead to financial hardships for military families and harm promotion potential within a given organization due to lack experience within the company, which affects future earnings potential and clientele base. The views expressed in this thesis are the authors, they are not official, and do not represent the views of the Department of Defense.

## B. PURPOSE OF THIS STUDY AND RESEARCH AIMS

While there exists a large body of literature evaluating military spouse employment, further analysis of licensing requirements and job opportunities for military spouses in specific locations can be beneficial. It has been found that older married spouses are more likely to be employed in the field in which their skills are best matched (Schwartz et al., 1991). Similarly, research conducted by Burke and Miller (2016) from the RAND Corporation found that married female spouses of military personnel experience significant financial decline after a move and are at a disadvantage compared to their civilian counterparts.



ACQUISITION RESEARCH PROGRAM Department of Defense Management Naval Postgraduate School The purpose of this study is to examine how a PCS affects military spousal employment and their contributions to family income, identify the most common career fields of military spouses (and which of those require a professional license), and examine unemployment rates in fleet concentrated areas (FCAs) against licensing requirements to investigate whether military spouses experience disadvantages in local labor markets. This is a gender-neutral issue and affects all spouses of military personnel. Given the empirical makeup of the married U.S. military population, however, this study focuses on the married female spouses.

The findings in this study can assist government and military leaders with understanding the difficulties faced by military spouses when a PCS is executed, improve their ability for employment, and reduce the financial burdens that occur when a spouse must terminate employment to relocate.

#### C. METHODOLOGY AND SCOPE

The section describes the data sources and methodology I use to analyze the impact of PCS moves on military spouse income contribution and employment. The data is sourced from the 2019 Active Duty Spouse Survey (ADSS) conducted by the Office of People Analytics (OPA) within the Defense Personnel Analytics Center (DPAC). The analysis focuses on variables related to human capital in the form of continuing education, career field, and geographic factors.

The analysis employs linear and multivariate logistic regressions to address the research aims outlined in the previous section. The first aim is to investigate the impact of PCS moves on spousal income contributions, using a linear probability model. The second explores the likelihood of military spouse employment, considering factors such as recent education, age, and the requirement of new professional licenses due to the PCS.

Additionally, the analysis considers spouses in different regions using data from the survey and cross-references it with the 2016 Industrial and Labor Relations Review (ILRR) supplemented by Dr. Marigee Bacolod. I use this approach to provide insights into the challenges faced by military spouses regarding employment considering the military lifestyle.



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#### **D.** LIMITATIONS

The analysis encounters several limitations that constrain my analysis. Primarily, the lack of panel data and explicit income wages make it difficult to draw conclusions about how a PCS directly affects spouse income contributions and labor market impacts. If I had access to panel data, I could better estimate the labor market outcomes by comparing the pre-PCS data against the post-PCS data. The relatively small dataset and low response rate also provide challenges in my analysis, even though I use probability weights to represent a more comprehensive sample. Additionally, reliance on pre-COVID data may overlook significant shifts in labor markets since the pandemic resulted in labor market changes. The recent Navy guidance on state license reciprocity for military spouses also remains unaccounted for in the data. Lastly, sparse data on occupational licensing for administrative services requires me to make generalized assumptions concerning occupational state licensing.

## E. FINDINGS

The analysis is divided into three main sections. First, it examines military spouses' contribution to household income and finds that while most contribute less than 50%, there is no significant relationship between a PCS move and decreased contribution. Secondly, I explore spouse unemployment and highlight the significant impact of new state license requirements on unemployment likelihood. Additionally, the recent completion of higher education can potentially increase unemployment risk. Those spouses needing new state issued licenses are also more likely to be unemployed.

I then investigate part-time and full-time employment. I find that the recent completion of higher education may hinder part-time employment but increase full-time employment likelihood. Moreover, those spouses employed in fields such as healthcare, education, and administrative services may experience difficulties finding full-time employment. Lastly, I address the impact of state regulations on military spouse employment, particularly in Navy Fleet Concentration Areas (FCAs) like California, Virginia, and Florida. I find that career fields such as healthcare and education face the most stringent licensing requirements in those states. These licensing requirements may



also contribute to employment difficulty. Overall, the analysis provides valuable insights into the financial and employment challenges faced by military spouses.

## F. OVERVIEW OF THE CHAPTERS

I organize this thesis in the following manner. I focus on the institutional background regarding military PCSs in Chapter II. In Chapter III, I review existing academic literature on married female labor supply and geographic distribution of female labor and expand on how it contributes to my work. Chapter IV outlines my approach towards data and how I analyze it. Chapter V subsequently reports my findings and limitations associated with this thesis. Finally, I conclude with my recommendations in Chapter VI.



# II. INSTITUTIONAL BACKGROUND

## A. PERMANENT CHANGE OF STATION ORDERS

Every year, the U.S. government authorizes the National Defense Authorization Act (NDAA), and one of the major aspects of the NDAA is the authorization for funding to relocate military personnel and their families throughout the continental U.S. and abroad. The need to move military personnel throughout their career life cycle is a matter of national security and force readiness. The ability to move qualified personnel to the locations where their skills are valued is one of the key aspects of maintaining a wartime ready force. A PCS usually falls into one of the following general categories: rotational, accession/separation, training, operational, and unit (Hix et al., 1998). The coordinated movement of personnel around the world is an endeavor that requires substantial amounts of money and time, so the government must be extremely diligent when it comes to personnel movements. The military issues orders to the servicemember and this signals the notification for execution in the future. The U.S. Navy classifies orders in the following manner according to the Naval Military Personnel Manual (MILPERSMAN) 1320–308, Permanent Change of Station (PCS) Transfer Order Execution which states that personnel will execute a PCS for the following reasons:

- PCS transfers, including assignment to temporary duty (TEMDU).
- Call to active duty.
- Change in homeport of a vessel or mobile unit.
- Reserve personnel ordered to active duty.
- Fleet Reservist (including temporary disability retirement) recalled to active duty.
- Separations from the service under honorable conditions (retirement, discharge, resignation). (Department of the Navy, 2007)

The U.S. Navy moves personnel throughout their career for a variety of reasons. As personnel grow more senior, their responsibility evolves as well, so the moves may become more frequent to meet the required career progression milestones. Most commonly, the service member's family chose to move with the service member to maintain the integrity of the family. At times though, the servicemember may be issued unaccompanied orders, which require the servicemember to move alone and leave the



family behind. This is done because sometimes the length of the tour is shorter, and costs are reduced, or the nature of the job requires the service member to be alone. Similarly, if the service member chooses to complete the next assignment alone, they will move alone and be a geo-bachelor, known as "geo-bach'ing," which means they will live alone or with other servicemembers until they are issued new orders while the family remains in a separate location. This is typically done when the service member is on short-term PCS orders, or the family is unable to relocate with the service member. Once the service member has been given orders and reports to the new command, they typically execute a tour equal to 24–36 months (Department of Defense, 2014). At the end of this period, the service member will be up for orders again and may be issued new orders to a new command in a different geographic location that requires a PCS. This cycle is constant throughout the career of a service member. For spouses who work in a given industry, it can become very difficult for them to gain seniority and experience within their field. This issue not only affects their pay, but it also affects their ability to build local human capital and/or develop a local clientele. It takes time and effort to grow a business and build a reputation in any geographic location so there may be no immediate solutions to the loss of income. Moreover, a labor market that may already be saturated with no room for new entrants into the labor force for the respective profession ultimately discourages workers from finding work.

Due to frequent moves, it can become a very delicate work-life balance for a family. The service member can submit preferences for duty stations, but the military ultimately has the final authority due to readiness and manpower requirements at the time. The military spouses play a pivotal role in the family because they are the ones who are left behind to care for the household if the service member leaves for a deployment or training. Their ability to find work and build human capital becomes very complex given all these factors. There are typically major decisions that must be made prior to a PCS like finding housing, childcare, schooling, and work to name a few. According to the 2019 Active-Duty Spouse Survey (ADSS), approximately 81% of spouses executed at least one PCS alongside the service member (Office of People Analytics [OPA], 2020). An added layer of complexity for spouses who are trained and/or educated in a field where professional



state licenses are required to legally work can make a PCS even more difficult. The U.S. government has taken steps to alleviate some of these burdens, but there are other factors that make finding meaningful employment more difficult.

#### B. GOVERNMENT LEGISLATION AND MILITARY SPOUSES

The U.S. government has taken steps to reduce burdens faced by spouses during a PCS cycle to make the search for meaningful employment easier. One of the biggest barriers for spouses' entrance into the workforce in a new location is the transfer of state licensing between duty stations. The occupational licensing requirements vary by state so the transfer of a state license may grow to be very difficult and time consuming. Often, the state laws and governing bodies require proof of licensing before the prospective employee is legally allowed to begin work in a new location (Kleiner, 2000). Until recently, it was up to the spouse of the service member to coordinate the transfer of their license from the previous state to the new one and pay all associated costs. The U.S. Department of Defense (DOD) has taken steps to minimize costs and promote transferability of state licenses between states through the Servicemembers Civil Relief Act (SCRA).

The bill—S.1084, Military Spouse Licensing Relief Act of 2021—explains that spouses of service members are legally protected upon transfer of another state's license into a new jurisdiction as long as the spouse provides PCS orders issued to military service member to the new governing body, remains in good standing with the issuing authority, and abides by the new governing authority's laws and requirements (S.1084, 2021). The spouse must renew the state issued license as required to ensure the license is up-to-date band is responsible for all associated costs. Of the previously mentioned 81% of spouses that executed a PCS with the service member, there was 31% that stated they needed a new state license to return to work in the new state (OPA, 2020). The Navy has taken steps to communicate these policies to service members and their spouses to ensure the transition of work for spouses who require a state license as effortless as possible. The Navy released Naval Administrative Message (NAVADMIN) 104/23 to reiterate the new reciprocities for spouses moving forward, inform personnel about reimbursement benefits for spouses, and note that lawyers are unable to transfer state licenses between jurisdictions (Chief of Naval



ACQUISITION RESEARCH PROGRAM Department of Defense Management Naval Postgraduate School Operations, 2023). There are resources for military spouses like Military OneSource that use programs to assist military spouses with job searches and employment opportunities. Military OneSource (2023a) has a division devoted to education and career opportunities, Spouse Education and Career Opportunities (SECO), which assists military spouses with job searches and the pursuit of education while married to active duty personnel. While there are intense efforts to assist military spouses with employment, especially during a PCS, there exist barriers for entry into labor markets that vary by geographic location and profession.



## III. LITERATURE REVIEW

### A. CHAPTER OVERVIEW

While there is extensive scholarly research on female labor market participation and outcomes, there has been limited research on the impact of PCS moves on the labor market outcome of military spouses. In this chapter, I review the scholarly literature on family labor supply with an emphasis on female labor supply, geographic distribution of female labor supply, and occupational licensing. As the evolution of female labor supply has changed drastically over time due to changes in societal norms, it is important to understand the challenges faced by married females in the labor force and the impact to families when spouses enter the labor force. The literature provides insights to how various economic conditions affect married female labor supply and how labor markets differ by region. I conclude with a focus on what this literature can tell us about potential labor market issues military spouses face due to PCS moves.

# B. FAMILY LABOR SUPPLY AND GROWTH IN FEMALE LABOR SUPPLY

A large literature in economics studies family labor supply using various theoretical models to better understand labor force participation. Moreover, the study of family labor supply with respect to female spouses has grown to become more important. The basic economic theory poses that leisure is a normal good and the pursuit of leisure is influenced by a host of factors such as the value of work opportunities, substitution effects, and wage rate (Mincer, 1962). The substitution effect between working or consumption versus leisure are relative to each family due to differences in tastes and values, but some of the most common substitution effects come from education, human capital, leisure, and wage changes. The theory of family labor supply grows more dynamic with the incorporation of multiple individuals and their respective preferences. In the life cycle of a family and their evolution over time, Smith (1977) explained how family choices will differ in the future not only due to changes in tastes, but also differences in prices of normal goods based on present prices. The household production model differs slightly and offers alternative insights into family labor supply. Under this model, the family is viewed as a small firm



ACQUISITION RESEARCH PROGRAM Department of Defense Management Naval Postgraduate School working to achieve collective desires in exchange for time spent working offered by each capable family member (Smith, 1977). Yet, the underlying principle remains the same: the family will trade time spent working for goods and services against leisure and optimal decisions will be arrived at by the family as a collective firm seeking to maximize their joint utility.

Over the 1900s, female labor supply increased dramatically. Mincer (1962) noted that the increased participation of women, especially married women, in the labor force— while income growth of men rose—served as a pivotal development within American labor economics. Mincer's (1962) study using Bureau of Labor Statistics (BLS) data found a relative steady increase in the labor force participation rate of married women, most notably between 1949 and 1959 when the participation rate was 8.4%. This indicates a four-percentage point increase for married female spouse labor force participation over the previous five decades. The most common perception of the family unit at the time usually involved men being the sole wage earners while their female spouses stayed at home and worked to maintain the home and care for children. The increased participation of women in the labor force signaled the desire to gain human capital and contribute to the economic well-being of the family by working outside the household.

There are many other factors that similarly contribute to female spouse labor supply, like time of year and wage rates of their male spouses (Mincer, 1962). If a male spouse works in an occupation where seasonal unemployment is a factor, the propensity of female spouses to find work during that time increases. The work done by Mincer demonstrates how the systematic family labor supply has changed with the passage of time and the evolution of societal norms. The evolution of family labor supply as noted by Mincer is pivotal in the analysis of spouses who are married to military personnel. The pursuit of human capital by female spouses depends on how the goods, services, and leisure are valued by the family unit and depend heavily on the family decision making process (Mincer, 1962).

Claudia Goldin, who in 2023 won the Nobel Prize in Economics for her work on changes in women's labor market outcomes, cited the following factors as having contributed to the dramatic increase in married women's labor supply in the last 100 years:



expanding education, availability of the oral contraceptive, shift in the U.S. economy away from manufacturing towards service, and changing societal expectations, to name a few. The work completed by Goldin (1989) compares the labor force participation of married to unmarried women and the extent of changes in participation for married women over time. Goldin explored the evolution of female labor supply by examination of labor force participation timing for both married and unmarried females. Goldin (1989) found that females who entered the labor market earlier in life were more likely to stay employed for longer periods in occupations with little to no interruptions like men. When a woman enters the labor force earlier in life, it is easier for her to choose a career path where human capital is achievable. Moreover, there is evidence of gender roles at play due to the wage gaps that exists between men and women. When women get married and children come into the picture, it becomes more difficult for the women to maintain a healthy work-life balance due to their inherent responsibilities at home caring for the children while the husband works to provide for the family. Goldin's analysis of women's labor market outcomes is important because it elaborates on the need for sustained careers, which is difficult for spouses of servicemembers to maintain. The constant disruption is that labor market participation can be extremely detrimental to spouses.

The propensity of spouses to enter the labor force relies heavily on the family dynamic, education level of each spouse, and spousal employment. The added worker effect coined by labor economists refers to the ability of spouses to enter the work force and supplement family income when their counterpart becomes unemployed or ill (Juhn & Potter, 2007). Since factors such as perfect certainty and no credit market constraints would keep spouses from entering the labor market, they are hardly ever the case, so the ability of female spouses to enter the workforce and gain meaningful employment serve the family unit as a type of insurance policy (Juhn & Potter, 2007). The safety net becomes an integral part of the family dynamic because the ability to respond to risk and uncertainty increases, which translates to reduced hardships within the family. Over time, the socially accepted norms concerning married female employment have changed, and we have seen the need for dual income families; thus, more spouses, specifically females, are entering the labor force. Juhn and Potter (2007) found the labor force participation rate for married women



increased from 30% in 1960 to 60% today. Ultimately, they found that while the added worker effect is important and present in marriages, the insurance aspect of a dual income household has decreased as time has progressed and the labor markets have changed (Juhn & Potter, 2007). The study utilized population surveys dating to the 1960s to cross-compare variables such as education of husband and wife, employment status, and the transition rates for female spouses into the labor force when the husband became unemployed. The data revealed the transition rates became lower with the passage of time and more married females were in the labor force. The concept of labor force participation as a means of insurance for the family is important because it adds another layer of protection for the family if spouses are able to contribute to family earnings.

These insights from the family labor supply literature are important for consideration of military female spouses. The family decision-making process has even more considerations for military families given the frequent relocation of servicemembers. In addition to female spouse preferences, the ability to gain meaningful human capital within a given field while moving frequently presents tough decisions for the family unit. When a military spouse is employed in a field where a license is required and human capital is dependent on the occupation, an additional layer of complexity is involved due to the nature of work and the well-being of the family.

## C. GEOGRAPHIC DISTRIBUTION AND TIME TRENDS IN FEMALE LABOR SUPPLY

Since the military family unit moves frequently throughout the duration of a servicemember's life cycle, there are variations in labor markets throughout the country for female spouses that must also be accounted for. One major factor that has remained understudied is how the rate of female labor supply varies across different geographic regions, namely metropolitan cities, across the United States (Black et al., 2014). Differences in female labor supply between cities are a product of labor market conditions in each location (Black et al., 2014). A major finding of the study was that married women with young children are more averse to labor force participation if there are long commute times associated with work (Black et al., 2014). The study used multivariate regressions of past U.S. Census data from the mid to late 1900s to the early 2000s for large metropolitan



cities to estimate labor force participation rates for married women. The data was carefully analyzed with differences in demographic, family structures, and local policies in mind. The evidence presented by the Black et al. (2014) study suggests that married female spouse labor force participation is a result of a mix of economic, demographic, and policy related factors that vary by region. In larger cities, there are more options for employment for female spouses across a wider range of occupations.

In addition, while gender wage gaps persist across areas, the gender wage gap is found to be narrower in larger cities due to agglomeration forces that tend to disproportionately reward men vs. women (Bacolod, 2016). In addition to the narrower wage gaps in larger cities, there exists a difference between female and male employment across geographic areas, where females tend to work in fields requiring cognitive and social skills, whereas men engage in relatively more physically intensive work (Bacolod, 2016). Bacolod (2016) analyzed data from the 2000 5-percent Census sample Integrated Public Use Microdata Series (IPUMS), 2010 American Community Survey (ACS) and the Occupational Information Network (O\*NET) 13.0 database to categorize male and female occupational skills.

Outside of commutes and agglomerative forces, many other factors associated with military moves that are outside of servicemembers' control have an unprecedented influence on the spouse's willingness to enter the labor market, such as local housing prices and availability of childcare. This serves as a signal that the labor markets in different cities across the U.S. where servicemembers are stationed offer different opportunities to gain meaningful employment for female spouses, dependent upon their occupation.

#### D. OCCUPATIONAL LICENSING

Finding meaningful work and acquiring the necessary human capital in each profession can be a difficult task. When there are various licensing laws that differ from state to state, the ability to find work can become even more difficult. In general, the licensing requirements serve one purpose and that is to establish initial requirements for a worker (Kleiner, 2000). The main benefits suggested by Kleiner (2000) state that the licensing laws are in place to better serve customers and protect their well-being. Generally,



the licensing boards are run by nongovernmental organizations comprised of professionals in their respective fields that ensure individuals have received adequate training and are employing safe practices in the workplace (Kleiner, 2000). The potential employees must submit their training credentials and pay a state-determined fee to the state board for processing before they are legally allowed to begin work. Every year, the license must be renewed via payment to the state board. Kleiner (2000) further stated that occupational licensing laws can largely affect the labor supply and create barriers to entry for prospective individuals. It argued that the regulation of licensing for employees is a rent-seeking practice by the state government and prohibits economic growth in various fields of service.

Despite the U.S. government's attempt to make significant strides to reduce the burdens associated with licensing and frequent moves for military personnel and their families, female spouses face distinct challenges when it comes to state licensing. The female spouses who work, excluding those who telework, have little choice but to become unemployed and move their families between states to follow the service member. These types of individuals are referred to as trailing spouses (Johnson & Kleiner, 2020). According to Johnson and Kleiner (2020), female spouses employed in occupations that require a state license could become less likely to find work in fields where long-distance migration is a detriment and the long-distance migration eliminates clientele/networks, which force spouses to reestablish "local capital" with every move. The work of Johnson and Kleiner analyzed the interstate migration of workers who require a state license between different states. Their work focused on the quantification of the relative decrease of interstate migration due to state licensing requirements using data from the American Community Survey between 2005 and 2017. The analysis found that while an increase in occupational licensing only accounts for a 2.5% decrease in interstate migration, the effects of licensing costs on interstate migration can be substantial at a 20% increase in some affected occupations (Johnson & Kleiner, 2020). Despite being encouraged to work in fields that are more transferable, there is an apparent disadvantage for military spouses because of the inability to establish a solid foundation after each move. Furthermore, the



spouses are required to renew the state issued license every year along with associated costs or risk revocation and loss of employment.



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## IV. DATA AND METHODOLOGY

This section details my data sources to analyze how PCS moves affect military spouse employment. I also document the data I use for establishing how state occupational licensing requirements in U.S. Navy FCAs may affect spouse's employment in certain fields of work. I will describe how I build my analytical datasets and variables to estimate the regressions models I outline below.

#### A. DATA

The data used for this thesis comes from the Office of People Analytics (OPA). Every two years, this organization in collaboration with Military OneSource conducts this survey to gather information about civilian military spouses of all branches of service and ranks, both active duty and reservists, to provide feedback on a plethora of issues that military spouses and families face. The surveys for active duty and reservists are conducted separately in alternating years. The only groups excluded were generals and admirals. While it is not an all-inclusive list, the survey contains topics such as PCSs, food insecurity, access to healthcare, access to military programs that assist military spouses and children, education, and employment. Once the survey window closes, OPA analyze the results which assist government and military leaders with decisions about military family quality of life. I use the 2019 ADSS dataset for my analysis. The 2019 survey had a sample size of 65,207 and there were approximately 52,385 ineligible or non-responses (OPA, 2019). Table 1 shows the breakdown by service. Table 2 shows spouse's rank. The summary statistics are shown in Table 3.

Service	Percentage
Air Force	27%
Army	37%
Navy	25%
Marine Corns	11%

Table 1. Breakdown by Service



Table 2.	Spouse's Rank
----------	---------------

Rank	Percentage
E1-E4	21%
Е5-Е9	57%
01-03	11%
04-06	11%

Variable	Variable Description	Mean	Std. Dev.	Min.	Max.
INCMCONT	Spouse income contribution	1.619	0.7592312	1	3
CAREERFLD	Field of employment	6.791	4.569245	1	13
FINALWGT	Analytical weight	66.049	62.14916	5.340105	1024.142
EMPWKLOOK	Labor Force participation	1.260	0.4389535	1	2
EMP01	Work for profit in the last week	1.490	0.4999223	1	2
JOBHUNT	Weeks spent looking for work	19.863	19.85203	0	52
	Execution of a PCS with				
PCSMOVE	servicemember	1.846	0.3607814	1	2
DEGREECMP	Level of education completed in past 12 months	4.855	1.371037	1	6
	Average hours spent working				
EMPHRSWK	for pay per week	34.725	13.68991	1	99
	New state license required after				
ACQLIC execution of PCS		2.214	0.7336626	1	3
SRAGE	Respondent age	34.005	7.975538	16	72

Table 3.Summary Statistics

I focus my analysis on survey variables that pertain to human capital in the form of continuing education, information regarding employment, timing of the execution of the last PCS, and geographic location. I conduct my data analysis in the Person Data Environment (PDE), a virtual computational environment run by the U.S. Army where the survey data is archived. These variables were cleaned then analyzed using Stata version 15.1 to answer the research questions I pose in this thesis.

Additionally, I use a dataset from Maury Gittleman and Morris M. Kleiner's 2013 Industrial & Labor Relations Review (ILRR) study of wage unionization and occupational licensing supplemented by Dr. Marigee Bacolod. There are three main types of state occupational regulation: registration, certification, and licensure. Registration is the least restrictive form of occupational registration, as this only requires individuals to file their



names, addresses, qualifications, etc., with a government agency or professional/trade association before practicing their occupation. Certification grants a specialized title to those individuals in that occupation, while licensure is the most restrictive as it is illegal for a person to practice that occupation without first meeting state standards, for example, taking a bar exam. The dataset I analyze has for each occupation and every U.S. state, the extent of occupational licensing regulation. A code of 2 indicates the entire Census occupation code in that state is covered by licensing requirements; a code of 1 indicates only part of the Census occupation code is covered by those requirements; and finally, a code of 0 indicates that occupation is not regulated.

### **B. METHODOLOGY**

This quantitative thesis uses linear and multivariate logistic regressions to analyze the data. Once clean, I use a variable from the survey dataset, PCSMOVE, that questions spouses about whether they experienced a PCS during the servicemember's career. The respondent provides a simple yes or no response that was recorded. According to the OPA 2019 ADSS results, approximately 80 percent of respondents have experienced a PCS during the career of the servicemember. To use this variable for our analysis, I create a variable to account for those who have executed a PCS, those who have not executed a PCS, and those who either skipped or failed to respond. Those who skipped or failed to respond are dropped from my analysis. I use this variable for regression analysis and comparison against factors such as licensing requirements, human capital in the form of continued education, and employment.

In addition to the binary variable indicating PCS, a key variable of interest is whether a license is required for the spouse to find employment. OPA reports that 30 percent of the individuals who responded required a new professional license to work in their field after the execution of a PCS (OPA, 2019). While only 54 percent only required four months or less to be issued a new license, 46 percent had to wait four months or longer (OPA, 2019).

In constructing my analytic sample and throughout my analysis below, I drop ineligible survey responses and use the survey-provided probability weights to account for



survey non-response and allow for representative statistics and estimates. In total, there were 9,531 valid responses that were eligible to be weighted and are included in my analysis. According to the OPA codebook, the variable ELIGFLGW represents an eligibility indicator variable for valid survey responses while the variable FINALWGT is an analytical weight based on respondent's previous responses. I use ELIGFLGW to define my analytic sample and the variable FINALWGT in generating the estimates and statistics that follow. To address the low response rate and the relative makeup of the military community, those respondents who were determined to represent a larger sample of the military community were assigned larger analytical weights and those who were determined to represent a smaller sample were assigned a smaller weight by OPA.

#### 1. Income

To answer my first research question and quantify the approximate income losses a family experiences when a female spouse must quit their job to PCS, I require a variable associated with spouse income. The ADSS contains a question regarding how much the spouse's income contributed to the family income. The question prompted the respondent to answer over 50 percent, 50 percent, or under 50 percent. I estimate a simple linear probability model using the following equation to determine if a PCS has significant impact on spousal's contribution to family income after a PCS is executed:

1. Under 
$$50 = \beta_0 + \beta_1 * \text{Post-PCS} + \epsilon$$

where "Under 50" is equal to 1 if the spouse contributes less than 50 percent, and zero if the spouse contributes 50 percent or more to the family income. "Post-PCS" equals one if a PCS has been executed by the spouse with the servicemember and is zero otherwise, while the epsilon variable represents the model error term.

The coefficient on "Post-PCS" shows whether PCS are significantly related to changes in spousal contribution to family income. While this is a simple correlation from a bivariate regression, the coefficient on "Post-PCS" will help answer my first research question.



In my analysis, I assume the income variable, INCMCONT in the ADSS codebook, is non-missing for the spouses who are actively engaged in the labor force. According to the 2019 ADSS, 64 percent of spouses are in the labor force and only 22 percent of all military spouses were unemployed (OPA). This rate excludes dual military spouses and spouses of warrant officers. In this context, an individual is considered as part of the labor force if they are employed plus those individuals who are unemployed and have been actively seeking work in the past four weeks. Moreover, OPA (2019) found that spouses spent on average 20 hours looking for work. Lastly, OPA also found that 35 percent of spouses who experienced a recent PCS within the last 12 months were unemployed (2019). I next investigate employment outcomes.

#### 2. Employment

Before I conduct multivariate analysis, I produce summary statistics to understand the levels of education military spouses have recently completed and what the most common professions were. I use the variable CAREERFLD which the ADSS codebook describes as asking the respondent to provide their current field of employment. I also use the variable DEGREECMP to understand the levels of continuing education spouses have, that is, education completed in the last 12 months. I chose not to focus on education completed prior to this because the individuals who have completed some form of continuing education in the last 12 months may experience the most difficulties when entering a new labor market and have no relative experience.

Table 4 presents summary statistics for continuing education (Table 4) and top 3 most common professions of spouses (Table 5). The top 3 spouse professions were in fields such as healthcare, education, and administrative services. Roughly 30 percent of military spouses have recently (in the last 12 months) obtained a bachelor's degree or higher and almost 50 percent have acquired some form of professional license or certification. The distribution of continuing education adds up to 100% as it only accounts for those who responded to the question concerning continuing education.



Level	Percentage	
High School Diploma/ GED	2.29%	
Vocational/Technical Diploma	5.13%	
Associate's Degree	10.96%	
Bachelor's Degree	15.67%	
Master's Degree/PhD	18.31%	
Professional License/Certification	47.64%	

Table 4.Spouse Continuing Education

Table 5.Common Professions for Military Spouses

Field	Percentage
Healthcare/ Health Services	19%
Education	11%
Administrative Services	8%

I also use the variables EMPWKLOOK and EMP01 which asked if the respondent has looked for work in the last four weeks and if they had worked for any pay in the last week. These variables allow me to determine the employment of spouses and who were in the labor force, and the summary statistics produced reflect the same results outlined in the 2019 ADSS Results Brief previously mentioned. Once I account for those spouses who were in the labor force, I separate those who worked full-time and those who worked part-time using the EMPHRSWK variable. The EMPHRSWK variable indicates the hours a military spouse has worked for pay in the previous week. Following the 2019 ADSS Report, I classify an individual as working part-time if they worked less than 35 hours per week.



I estimate three separate logistic regressions to relate spouse labor market outcomes with PCS using controls such as continuing education and age:

2. 
$$P(Unemployment = 1 | x) = \frac{e^z}{(1+e^z)}$$
,

Where Z is defined as:

$$\begin{split} Z_i = \beta_0 + \beta_1 * \text{Post-PCS} + \beta_2 * \text{New License Required} + \beta_3 * \text{HS Diploma/GED} + \\ \beta_4 * \text{Associate's/Vocational} + \beta_5 * \text{Bachelors/Masters/PhD} + \beta_5 * \text{Age} + \epsilon_i \end{split}$$

To examine full and part-time employment, I estimate:

3. 
$$P(Part Time Employment = 1 | x) = \frac{e^z}{(1+e^z)}$$
,  
4.  $P(Full Time Employment = 1 | x) = \frac{e^z}{(1+e^z)}$ ,

and for both Equations 3 and 4, Z is:

$$\begin{split} Z_i &= \beta 0 + \beta_1 * \text{Post-PCS} + \beta_2 * \text{New License Required} + \beta_3 * \text{HS Diploma/GED} + \\ \beta_4 * \text{Associate's/Vocational} + \beta_5 * \text{Bachelors/Masters/PhD} + \beta_6 * \text{Health Care} + \\ \beta_7 * \text{Education} + \beta_8 * \text{Admin Services} + \beta_9 * \text{Age} + \epsilon_i \end{split}$$

As described earlier, "Post-PCS" equals 1 if the spouse has experienced a PCS and is 0 otherwise. The "New License Required" variable equals 1 if the respondent who has a professional license or certification was required to obtain new credentials in the state where the ultimate duty station was located. The human capital variables in the form of continuing education represent an individual's highest education level completed in the past 12 months. "Age" is a continuous variable of the respondent's age.

For Equations 3 and 4, those individuals who responded that they worked 35 hours or more are classified as full-time whereas those who worked less than 35 hours are deemed part-time in accordance with the 2019 ADSS. In estimating equation 3, the dependent variable is part-time which equals 1 if they worked less than 35 hours and 0 if they work 35 hours or more or are unemployed. In equation 4, full time equals 1 if they worked 35 hours or more and 0 if they work part-time or are unemployed. Finally, the variables "Health Care, Education and Admin Services" represent the three professions that were the most frequent among respondents.



In my analysis of these controls and their effect on unemployment and part-time or full-time work, I take particular interest in the coefficients associated with PCS, licensing, and human capital. Moreover, a positive or negative coefficient on the variable for a new license requirement following a PCS will provide me useful insight to whether those spouses are more likely to be unemployed. In addition to the coefficient associated with licensing requirements, I also focus on the coefficients associated with the sector of their professions. These coefficients represent the ability of persons employed in these fields propensity to find either part-time or full-time work.

In my analysis, my reference groups are as follows: those who have not executed a PCS, those who do not require a state license to work, and those individuals who have not completed high school or a GED equivalent as a part of continued education in the last 12 months. Additionally, for equations 3 and 4, those who are not employed in the career fields listed serve as the comparison group.

All respondents who failed to respond are excluded from the analysis. It is important to note again that probability weighting was used for the unemployment, parttime, and full-time regressions to account for survey non-response and obtain representative estimates.

In the results I report below, I am interested in whether the signs associated with the variables are positive or negative because it represents the relationship of each with the spousal labor market outcomes. I focus on the coefficient estimates rather than the marginal effects because I am only interested in the direction of the relationship of each variable on the probability of each outcome rather than the magnitudes. I discuss my analysis further in Chapter V.

Finally, I use summary statistics using the variable WHILENAVY from the codebook. This variable represents the most common regions from where Navy spouses respond from and it allows me to infer where the fleet concentrated areas are located by state. I cross-compare the results of respondent regions to the 2016 ILRR data. This analysis of state licensing occupational data pertains only to Navy spouses located in FCAs (Table 6). My analysis will be discussed more in-depth in my next chapter.



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Region	Percentage
Mid-Atlantic	28.78%
Southwest	22.82%
Southeast	17.41%

Table 6.Respondents by Region



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## V. RESULTS AND LIMITATIONS

I report my findings and key takeaways in three parts. First, I report the results of my findings concerning military spouses and income. I use these findings to draw conclusions about the financial landscape of how military spouses contribute to the family income. Secondly, I report on the unemployment faced by military spouses and how a PCS may be correlated with whether a military spouse will be unemployed given various human capital in the form of continuing education. Lastly, I report on the hours worked by military spouses in a similar manner as unemployment while including the three most common professions held by military spouses. Furthermore, I cross-compare these findings against national data in the form of occupational licensing at the state level. I then compare these results against the ADSS data set to infer where spouses may experience difficulties in local labor markets in the FCAs. I use these findings in conjunction with the 2019 ADSS results prepared by the Office of People Analytics (OPA) to determine how a PCS can impact spouse employment, especially in FCAs. I focus my analysis on those military spouses in the most common career fields that require a state license.

#### A. INCOME

To quantify the income lost by a household when a servicemember executes a PCS, I first create a histogram using survey data containing roughly 9,500 observations to illustrate the distribution of how much military spouse's incomes contribute to the overall household income. As shown in Appendix A, most spouses contribute less than 50 percent to the household income.

Next, to explore the bivariate relationship of spouse contribution to family income and PCS, I estimate equation 1 described in Chapter IV. The regression produces a value which shows that PCS is not statistically significantly distinguishable from 0. I conclude that a PCS by itself is not significantly related with military spouses contributing less than 50 percent to the household income. Since this estimate is a mere correlation, however, there are multiple other factors that potentially play a role in this. Those other factors can



ACQUISITION RESEARCH PROGRAM Department of Defense Management Naval Postgraduate School come in the form of spouses who telework and can maintain positions for longer periods of time.

It is also possible the larger contributions come from spouses of lower enlisted personnel who do not earn as much because of their lack of time in service. The low earnings of the servicemember can translate to a larger income disparity between spouse and servicemember if the spouse has been working longer than the servicemember's time in service. I also assume that there are many aspects associated with the military lifestyle that keep spouses from joining the labor force such as frequent moves, deployments, and childcare. Regardless, military families are potentially losing these relative incomes when a PCS is executed.

### **B. UNEMPLOYMENT**

After I examine income, I next estimate the impacts of a PCS on spouse unemployment while controlling for various levels of human capital investment represented as continuing education. In my analysis of unemployment, my focus is concentrated on the sign associated with each variable. The comparison group for this analysis are those who are employed as well as those who are not in the labor force. That is, a positive or negative indicates whether that independent variable is positively or negatively associated with the likelihood of unemployment relative to being employed or not in the labor force. I begin by estimating the bivariate relationship between a PCS and unemployment and add additional controls as shown in Table 8. The coefficients on each variable are estimates of Equation 2 in Chapter IV.

Like the results from the previous regression for income, the likelihood of unemployment is not significantly related with a PCS in column 1 of Table 7. In fact, the value is relatively small at 0.007. This result leads me to believe a PCS may not be the only reason why spouses are unemployed. I then add a control for a new license requirement following a PCS in column 2 of Table 7. This is a focal point for my analysis of unemployment. The statistically significant coefficient associated with this variable in Columns 2, 3, and 4 demonstrates that the requirement for a new state issued license following a PCS is significantly related to an increased likelihood of unemployment. While



the length of unemployment is unclear, there is an increased probability that they will face unemployment if their profession requires a new license.

In Columns 3 and 4, I add controls for human capital in the form of continued education and age. As I add the final variables, the likelihood of military spouse unemployment following a PCS truly unfolds. In Column 4, the only two variables that were not statistically significant were the "Post-PCS" and "Age" variables so their impacts on unemployment were not the most important considering the other factors. As a spouse accumulates more human capital in the form of education, the likelihood of unemployment for those spouses decreases following a PCS. Each level of education produces a statistically significant estimate, but some more than others. Spouses who recently completed high school or the GED equivalent were the most likely to be unemployed following a PCS. The reference group are those who have not completed high school/GED equivalent and/or those who failed to respond as they had no educational degree completed in the last 12 months. Given these findings, I infer that those spouses with higher forms of education of any age are less likely to find meaningful employment. Similarly, those spouses who require a new license are more likely to experience unemployment after a PCS.



	(1)	(2)	(3)	(4)
	Unemployed	Unemployed	Unemployed	Unemployed
Unemployed				
Post-PCS	0.007	-0.085	-0.047	0.007
	(0.110)	(0.113)	(0.115)	(0.122)
New License		0.463***	0.354**	0.363**
Required		(0.116)	(0.120)	(0.120)
HS Diploma/GED			1.159*	1.093*
			(0.460)	(0.459)
			0.502**	0.555*
Associate's/			0.593	0.555
Vocational Degree			(0.215)	(0.218)
Bachelors/Master's			0.506***	0.502***
Degree/PhD			(0.122)	(0.122)
e				
Age				-0.011
-				(0.006)
Constant	-1.961***	-1.961***	-2.084***	-1.767***
	(0.098)	(0.098)	(0.103)	(0.198)
Observations	9512	9512	9512	9494

Table 7.Unemployment Regression Table

Standard errors in parentheses

Probability Weighting (pw) used to account for the ineligible responses & non-responses

\* p < 0.05, \*\* p < 0.01, \*\*\* p < 0.001

## C. PART-TIME AND FULL-TIME EMPLOYMENT

In this analysis of employment, I attempt to determine the likelihood of either fulltime or part-time employment for those spouses employed in healthcare, education, or admin services following the execution of a PCS. I approach the employment data in the same manner as unemployment. It is necessary to note again that the cutoff for part-time versus full-time employment is 35 hours of work in the last week.

First, I report on the findings associated with part-time work. I attempt to predict part-time employment for spouses after a PCS with levels of education and career field. Table 8 reports estimates of Equation 3 in Chapter IV. I conduct my analysis in the same



manner as the analysis of unemployment. In Column 1, I again demonstrate how the execution of a PCS alone is not a significant factor when it comes to part-time employment. The only statistically significant finding was in Column 3, but it does not contain some of the most important controls. The control for the requirement of a new license follows a similar trend like the control for a PCS. It is difficult at this point to draw any concrete conclusions.

In addition to human capital variables in the form of continued education, I add controls to represent some of the most common professions requiring a state license held by military spouses in Column 4 of Table 8. As I introduce controls for human capital and common military spouse professions, I uncover deeper findings. In this case, a higher level of education such as a bachelor's degree or higher may hinder a spouse's ability to find part-time employment. This is shown in Column 4 of Table 8 with the statistically significant negative coefficient on "Bachelor's/Master's Degree/PhD." This leads me to believe a PCS is not the only reason spouses experience difficulties in the labor market.

Conversely, those spouses employed in fields such as health care, education and administrative services are more likely to find part-time work. The positive coefficients that are statistically significant associated with each profession in Column 4 provide evidence. The statistically significant negative coefficient on the control for age demonstrates that those spouses who are older may have difficulty finding part-time positions. It is my assumption it may be more difficult for military spouses to find part-time employment with higher forms of education due to factors such as longevity and lack of available positions. The positions that require a higher education may be seeking employees who are willing to work long term. In general, we see a decrease in part-time employment probability for more educated individuals but with the introduction of controls for career field, I can begin to hypothesize that those younger individuals in these fields of work are more likely to find part-time employment.



	(1)	(2)	(3)	(4)
	Part Time	Part Time	Part Time	Part Time
Part Time				
Post-PCS	-0.135	-0.195	-0.216*	-0.122
	(0.098)	(0.100)	(0.100)	(0.108)
New License		0.318**	0.365***	-0.003
Required		(0.106)	(0.107)	(0.114)
HS Diploma/GED			-1.261	-1.133
			(0.752)	(0.760)
Associate's/			-0.439	-0.488
Vocational Degree			(0.293)	(0.272)
Bachelors/Master's			-0.208	-0.320**
Degree/PhD			(0.115)	(0.118)
Health Care				1 141***
				(0.121)
Education				1 675***
Education				(0.145)
Admin Services				0.784***
Admin Services				(0.174)
A				0.011*
Age				-0.011
				(0.005)
Constant	-1.758***	-1.758***	-1.705***	-1.624***
	(0.088)	(0.088)	(0.088)	(0.181)
Observations	9512	9512	9512	9494

#### Part-Time Employment Regression Table Table 8.

Standard errors in parentheses

Probability Weighting (pw) used to account for the ineligible responses & non-responses \* p < 0.05, \*\* p < 0.01, \*\*\* p < 0.001

After my analysis of part-time employment, I conduct the same exact analysis as above, except this time the outcome is full-time employment. I attempt to predict full-time employment for spouses after a PCS with levels of education and career field. The results produced by the regressions with full-time employment show different results in contrast



to part-time work with the main differences coming in the form of higher education and the most common professions. Yet, these results help confirm my findings for the part-time regression.

At first glance, Table 9 seems like Table 8. The inclusion of more controls from Column 1 to 4 shows the relative changes in how the controls influence the outcome. Unlike part-time employment, those spouses who seek full-time employment with a bachelor's degree or higher are more likely to find full-time employment as shown by the positive coefficients on the education variables in Column 4. One finding of interest is the change in the "New License Required" variable in both Tables 8 and 9 for part-time and full-time employment. When I compare Columns 3 and 4, it appears as if the license requirement after a PCS is no longer significant in both columns. As I introduce controls for each career field, these variables seem to absorb the licensing requirement. The three variables represent a career field that requires a license to work in each state. I assume that the requirement of a state issued license still plays a significant role in spouse employment.

Furthermore, those younger spouses who are seeking full-time employment in fields such as health care, education, and administrative services may have a more difficult time as shown by the statistically significant negative coefficients associated with each variable. Those spouses employed in the education field are most likely to have difficulty finding full-time employment. The difficulties associated with finding full-time employment may be a result of factors such as labor market saturation or difficulties associated with timely transfer of state licenses for the listed professions after a PCS.



	(1)	(2)	(3)	(4)
	Full Time	Full Time	Full Time	Full Time
Full Time				
Post-PCS	0.135	0.195	0.216*	0.122
	(0.098)	(0.100)	(0.100)	(0.108)
New License		-0.318**	-0.365***	0.003
Required		(0.106)	(0.107)	(0.114)
HS Diploma/GED			1.261	1.133
			(0.752)	(0.760)
Associate's/			0.439	0.488
Vocational Degree			(0.293)	(0.272)
Bachelors/Master's			0.208	0.320**
Degree/PhD			(0.115)	(0.118)
Health Care				-1.141***
				(0.121)
Education				-1.675***
				(0.145)
Admin Services				-0.784***
				(0.174)
Age				0.011*
				(0.005)
Constant	1 758***	1 758***	1 705***	1 624***
- Children	(0.088)	(0.088)	(0.088)	(0.181)
Observations	9512	9512	9512	9494

Table 9.	Full-Time	Employmer	nt Regression	Table
1 4010 7.		Linpioymer		1 4010

Standard errors in parentheses

Probability Weighting (pw) used to account for the ineligible responses & non-responses \* p < 0.05, \*\* p < 0.01, \*\*\* p < 0.001

## D. OCCUPATIONAL LICENSING AND NAVY FCAS

To address the impact of state regulation on military spouse employment, I supplement my regional respondent findings from Navy spouses with state licensing data. I cross-compare my findings against the 2016 ILRR data supplemented by Dr. Marigee Bacolod to make educated assumptions concerning Navy spouse employment in U.S. Navy FCAs. Using the respondent location data from the 2019 ADSS shown in Table 6, I



compare the most common professions of military spouses against the occupational licensing severity data for those occupations found in the 2016 ILRR shown in Table 10.

	Health Care/Health Services	Education	Admin Services
California	2	2	1
Virginia	2	2	1
Florida	2	2	1

 Table 10.
 Common Occupational Licensing Requirements by State

1 = Moderate Regulation

2 = Heavy Regulation

0 = Unregulated

I also collect state-level data from the Military.com U.S. Navy Base Guide List to find the states that have the most U.S. Navy installations. According to Military.com, there are approximately 10 installations in California, eight in Florida, and six in Virginia (Military.com). Virginia is home to the largest naval base in the world with Naval Station Norfolk and Hampton Roads (Commander-Navy Region Mid-Atlantic). This data allows me to conclude that Navy spouses are largely concentrated in these regions. This data and the data from the 2019 ADSS serve as the basis for my conclusions regarding military spouse employment in Navy FCAs. I supplement this data with Appendix B which shows the estimated state-licensing requirements by state. Those states with darker shades represent those states with more licensing severity by profession.

I infer that region Mid-Atlantic is comprised of personnel mostly from Virginia, region Southwest is comprised mostly from personnel from California, and region Southeast represents personnel from Florida. The 2016 ILRR data reveals that spouses employed in healthcare and education will face the most stringent occupational licensing requirements in California, Virginia, and Florida. Those spouses employed in administrative service will face some moderate regulation in these three states. Based on this cross-comparison, I infer that the Navy spouses may experience longer periods of



unemployment and/or difficulties associated with transfer of an existing state-license if a military spouse conducts a PCS with the servicemember to one of these three states.

### E. LIMITATIONS

There are multiple limitations that I confront in my analysis. The first and most glaring limitation is the relatively small data set and the low response rate. I account for this limitation by using the survey-provided probability weights which allows me to make more representative estimates. However, if I had access to larger and more comprehensive data, the quality of the analysis could improve. Similarly, I lack panel data which prevents me from observing spouse labor market outcomes before and after a PCS. I also do not have access to explicit wage income which also prevents me from drawing stronger conclusions about spouse income contribution and how that changes after a PCS.

I complete this analysis with pre-COVID data so the responses to questions and associated numbers since then may have changed drastically due to the change in local labor markets and unemployment rates. There has also been another study completed by OPA since 2019, but I was unable to gain access to said data. Additionally, the new guidance recently released by the Navy that grants state license reciprocity to military spouses could have a major impact on the employability of military spouses.

If I had more time, I would have been able to investigate the labor markets more thoroughly at the local levels, but the time constraint only allowed me to conduct analysis at the state level. Lastly, the data for occupational licensing concerning administrative licensing services was very sporadic. I was required to make assumptions regarding various types of positions due to limited data. In this case, the admin services data is based on occupational licensing for positions such as administrative positions for various states gaming boards. I assume that administrative positions fall under the same types of regulation at the state level.



## VI. CONCLUSION AND RECOMMENDATION

#### A. CONCLUSION

In my analysis, I attempt to determine if the execution of a PCS has a significant effect on spouse employment and how it affects financial contributions by spouse to the family income. I also examine the most common professions held by military spouses and analyze whether those individuals are more or less likely to find employment, especially those located in FCAs. I cross-compare the most common professions of military spouses that require a state-issued license against licensing requirements in areas where military spouses are concentrated.

I do not find evidence that the execution of a PCS is the sole determinant of unemployment at the next duty station. There are a host of other factors like human capital in the form of continued education and labor market conditions that also play a role in spouse employment. While most spouses can find employment if they choose, it is more difficult for military spouses to find employment in fields where their skills and knowledge are specialized. It also means that some families have important decisions to make when it comes to the military lifestyle. I assume some military spouses choose to stay at home due to the financial costs of other factors. These factors can come in the form of staying at home to care for children or spouses simply choosing not to work. It has been my experience that my wife and I have made the decision for her not to work because her starting salary in a new location would simply just offset the cost of childcare. Rather, she stayed at home and cared for our child.

Those spouses who require a state license may have to endure longer periods of unemployment due to state licensing requirements and this is just an accepted reality of their occupation and is a result of the military lifestyle. Furthermore, an FCA labor market may become saturated due to an influx of military spouses who are all seeking employment in similar career fields not to mention the residents of the area who also seek out work. The military lifestyle and frequent PCSs undoubtedly complicate military spouse employment.



It is up to the family and their respective values as to whether the military spouse will enter the labor force after a PCS.

## **B. RECOMMENDATION**

Based on my findings, it is my recommendation that the U.S. government and military continue to fund the programs already in place to assist spouses with education and employment, as well as support existing policy that grants reciprocity to military spouses when it comes to the transfer of state-issued licenses between states. In relation to my findings, it may be more beneficial to give more support to those spouses who have higher levels of education and specialized training. It may be the case where their level of skill and knowledge are harder to market for themselves in these FCAs due to lack of available positions that align with their skills. For future research, I recommend conducting a similar analysis that investigates the local labor markets in FCAs for the most common professions held by military spouses to provide a more informed analysis of local labor markets. A report of this magnitude would improve leadership's ability to assist military spouses with finding employment in in FCAs in fields where they are trained and educated, especially those spouses with higher forms of education.



# APPENDIX. SUPPLEMENTARY FIGURES AND TABLE



## A. MILITARY SPOUSE INCOME CONTRIBUTION HISTOGRAM



## **B.** LICENSING SEVERITY BY STATE



No of occupations in each state requiring a license

# C. EQUATION VARIABLES

Variable Name	Variable Description
Income	Categorical variable for income level
Post-PCS	Binary variable for execution of a PCS
Unemployment	Binary variable for employment
New License Required	Binary variable for new license required after a PCS
HS Diploma/GED	Recent completion of high school or GED
Associates/Vocational	Recent completion of an Associate's or Vocational Degree
	Recent completion of a Bachelor's, Masters or Professional
Bachelors/Masters/PhD	Degree
Age	Respondent's age
Part-Time Employment	Employed less than 35 hours per week
Full-Time Employment	Employed 35 hours or more per week
Health Care	Employment in health care field
Education	Employment in education field
Admin Services	Employment in admin services field



# LIST OF REFERENCES

- Bacolod, M. (2016). Skills, the gender wage gap, and cities. *Journal of Regional Science*, 57(2), 290–318. https://doi.org/10.1111/jors.12285
- Black, D. A., Kolesnikova, N., & Taylor, L. J. (2014). Why do so few women work in New York (and so many in Minneapolis)? Labor supply of married women across U.S. cities. *Journal of Urban Economics*, 79, 59–71. https://doi.org/10.1016/ j.jue.2013.03.003
- Burke, J., & Miller, A. (2016). *The effects of military change of station moves on spousal earnings*. RAND Corporation. https://www.rand.org/content/dam/rand/pubs/ working\_papers/WR1100/WR1170/RAND\_WR1170.pdf
- Commander- Navy Region Mid-Atlantic. (n.d.). *Welcome to Naval Station Norfolk Installation Information*. Commander Navy Installation Command (CNIC). https://cnrma.cnic.navy.mil/Installations/NAVSTA-Norfolk/
- Department of the Navy. (2007). *Permanent Change of Station (PCS) Transfer Order Execution*. (MILPERSMAN 1320–308). https://www.mynavyhr.navy.mil/Portals/ 55/Reference/MILPERSMAN/1000/1300Assignment/1320-308.pdf?ver=CBLhruIXL6EH03oGIXkq2g%3D%3D.
- Department of the Navy (2014). *Marine Corps Personnel Assignment Policy*. (Marine Corps Order 1300.8). https://www.marines.mil/Portals/1/MCO%201300.8.pdf.
- Department of the Navy. (2023). Navy Spouse Employment Program Update. (NAVADMIN 104/23). https://www.mynavyhr.navy.mil/Portals/55/Messages/ NAVADMIN/NAV2023/ NAV23104.txt?ver=por\_XJ4AcgcYrfPGfvnPDA%3d%3d.
- Goldin, C. (1989). Life-cycle labor force participation of married women: Historical evidence and implications. *Journal of Labor Economics*, 7(1), 20–47. https://doi.org/10.3386/w1251
- Hix, W., Shukiar, H., Hanley, J., Kaplan, R., Kawata, J., Marshall, G., & Stan, P. (1998). Personnel turbulence: The policy determinants of permanent change of station moves. https://doi.org/10.7249/mr938
- Johnson, J. E., & Kleiner, M. M. (2020). Is occupational licensing a barrier to interstate migration? *American Economic Journal: Economic Policy*, *12*(3), 347–373. https://doi.org/10.1257/pol.20170704
- Juhn, C., & Potter, S. (2007). Is there still an added worker effect? (No. 07–14). National Bureau of Economic Research.



- Kleiner, M. M. (2000). Occupational licensing. *Journal of Economic Perspectives*, 14(4), 189–202. https://doi.org/10.1257/jep.14.4.189
- Military OneSource. (2023a). *Education & employment for spouses*. https://www.militaryonesource.mil/education-employment/seco/
- Military OneSource. (2023b). *PCS: The basics about permanent change of station*. https://www.militaryonesource.mil/moving-pcs/plan-to-move/pcs-the-basicsabout-permanent-change-of-station/
- Military Spouse Licensing Relief Act of 2021, S.1084 (2021). https://www.congress.gov/ bill/117th-congress/senate-bill/1084
- Mincer, J. (1962). Labor force participation of married women: A study of labor supply. In Aspects of labor economics (pp. 63–105). Princeton University Press.
- Navy Base Guide List. Military.com. (n.d.). https://www.military.com/baseguide/browse-by-service/navy
- Office of People Analytics. (2020, December 2). 2019 Survey of Active Duty Spouses. https://download.militaryonesource.mil/12038/MOS/Surveys/ADSS1901\_MOS-Briefing-508-Revised.pdf
- Schwartz, J. B., Wood, L. L., & Griffith, J. D. (1991). The impact of military life on spouse labor force outcomes. Armed Forces & Society, 17(3), 385–407. https://doi.org/10.1177/0095327x9101700304
- Smith, J. P. (1977). Family labor supply over the life cycle. In Explorations in Economic Research, Volume 4, number 2 (pp. 1–72). National Bureau of Economic Research.





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