DO PAID PARENTAL LEAVE POLICIES INCREASE FEMALE SUCCESS IN THE WORKPLACE?

A Thesis
submitted to the Faculty of the
Graduate School of Arts and Sciences
of Georgetown University
in partial fulfillment of the requirements for the
degree of
Master of Public Policy.

By

Alexandra C. Hoey, B.A.

Washington, DC
April 1, 2014
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Thesis Advisor: Andrew S. Wise, PhD.

ABSTRACT

2013 marked the 20th anniversary of the Family and Medical Leave Act (FMLA), drafted by the National Partnership and signed by President Clinton in 1993. It is the first and only national law in the United States designed to help Americans meet the dual demands of work and family. The FMLA guarantees eligible employees up to 12 weeks of unpaid leave each year to care for a newborn, a newly adopted child or a seriously ill family member, or to recover from their own serious health conditions, including pregnancy. Maternity policy, both in the U.S. and globally, has evolved with the steadily increasing labor force participation rate of women. It is unclear if the U.S. will follow in the footsteps of similar nations that already provide paid parental leave, but it seems likely that the evolution of maternal health benefits remains unfinished. The purpose of this study is to examine the general relationship between female leadership in the workplace and the presence of paid parental leave policies in various countries. Specifically, I investigate the relationship between the presence, length, and providers of paid parental leave and levels of female participation and leadership in the workforce, and how this could impact the productivity of a country’s economy in the global market. Additionally, this study will explore the relationships between global gender wage gaps and parental leave policies. The length of time passed since a country first introduced some form of parental leave legislation is also a key component of this study. This study will indicate the positive or negative effect paid parental
leave policies have on female leadership, and thus whether a paid parental leave policy represents a cost or benefit in this dimension for the United States.
The research and writing of this thesis
is dedicated to everyone who helped along the way.

Many thanks,
ALEXANDRA C. HOEY
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INTRODUCTION

The purpose of this study is to examine the general relationship between female leadership in the workplace and the presence of paid parental leave policies in various countries. Specifically, I investigate the relationship between the presence, length, and providers of paid parental leave and levels of female participation and leadership in the workforce, and how this could impact the productivity of a country’s economy in the global market. Additionally, this study will explore the relationships between global gender wage gaps and parental leave policies, and whether each have an effect on the other. I hope to show it is possible that countries with high gender wage gaps will most likely have weaker parental leave policies, and the two policy issues should be addressed in conjunction with one another. The length of time passed since a country first introduced some form of parental leave legislation is also a key component of this study. This study attempts to indicate the positive or negative effect paid parental leave policies have on female leadership, and thus whether a paid parental leave policy represents a cost or benefit in this dimension for the United States. I hypothesize that this study will show longer maternity leave periods and higher wages paid during that time will positively affect the total percent of female leaders in the workforce. I hope to be able to recommend vast improvements to the maternity leave policy in the United States based on the results of this study.

Researchers have studied maternal healthcare policies in countries throughout the world extensively over the past century, through many different lenses. The relationship of changing gender roles in both the home and the professional sphere, discrimination in the workplace, wage gaps between men and women, and labor force participation with access to adequate healthcare policies have all been examined extensively, with fascinating results worldwide. It has been well
documented that most countries (both developed and developing) do in fact acknowledge and take advantage of the many benefits of offering paid parental leave. Previous studies suggest that when women have access to paid leave after the birth of a new child, they are more likely to return to work than women who do not have access to paid leave [Laughlin (2011)]. As a result, many believe that among other correlations, a strong association exists between female employment and women’s access to paid parental leave. It is possible that countries that do not have systems of paid parental leave lose out on female participation and leadership in the workplace, which in turn results in a loss of productivity and economic success in the global market.

The United States is one of four countries in the world that does not guarantee its workers the right to paid maternity leave, a member of an exclusive club alongside Lesotho, Papua New Guinea and Swaziland. Roughly 50 percent of working mothers in the United States private sector can qualify for 12 weeks of unpaid job-protected leave offered through the Family and Medical Leave Act after satisfying a litany of requirements, but any salaried compensation for the time spent on parental leave is at the discretion of their employers [Farrell and Glynn (2013)]. Not even federal employees enjoy the luxury of paid parental leave. This market-oriented, capitalist policy is not a globally shared ideology, and countries like the U.S. that tend toward more free market policies could perhaps be inadvertently barring women from the labor force in a way that has previously gone relatively unnoticed: countries without adequate maternal healthcare policies could possibly contribute to the lack of female leadership in the workforce.

By contrast, women and men in Sweden can receive more than a year of parental leave. In the Philippines, maternity leave lasts for 60 days, and in Saudi Arabia, arguably one of the
most oppressive places on earth for its female population (for example, women are barred from
driving and will only be able to vote for the first time in 2015), new mothers are entitled to ten
weeks of maternity leave [Veuger (2013)]. It seems as though many countries that more
frequently interfere with the market and healthcare policies could be allowing women to
participate in the work force at a higher level due to their more progressive maternity policies –
which could account for the increased opportunity to enact said maternal policies in the first
place.

Despite the many studies that have been conducted on the wide range of issues
surrounding the issue of maternal healthcare and its relationship to female employment, several
questions linger. What is the relationship between a national compensated maternity leave policy
and the level of females in executive and leadership positions? Does the lack of a maternity leave
(paid or unpaid) policy bar women from achieving higher levels of employment in any way?
Does the absence of such female leadership effectively preclude the advancement of more
progressive health policies? Does the length of time passed since a nation first introduced a form
of parental leave policy contribute to the strength and implementation success of said policy?
And finally, the issue of the gender wage gap that persists in many countries around the world
(notably the 23 percent gap in the U.S.) today could be negatively impacting the level of female
leadership in those countries. Does the gender wage gap that persists in most countries around
the world contribute to the presence and length of parental leave policies? I will seek to provide
answers to these questions. Using data from countries around the world, I will perform a cross-
country analysis to explore the relationship between the presence of maternal healthcare policies
and the level of female leadership and executives, and which type of economy is more favorable
in providing maternity leave to its female citizens. I will perform a wide and far-reaching comparative analysis, will examine countries that are developed and developing, those with maternal policies and those without, and will attempt to discover the similarities and differences between them. I will pay particular interest to countries that are members of the Organization for Economic Cooperation and Development (OECD). The United States, Lesotho, Papua New Guinea, and Swaziland may look dissimilar from the outset, but it is possible some common characteristic exists that links them to the reason why they do not provide maternity leave. In this paper, I will contribute to the vast amount of existing research of global maternal healthcare, but will examine a slightly different aspect of its implications.

The paper proceeds as follows. In the next section, I review the background of this issue, related literature, and relevant theory. In Section III, I develop a theoretical model to explain the relationship between female leadership and presence of paid parental leave. In Section IV, I discuss the data I employ to study this issue. In Section V, I demonstrate the empirical equations I estimate to study the relationship between levels of female leadership in the workforce, relevant regulatory and policy environments, and presence and length of paid parental leave, and I discuss the results from estimating those equations. Finally, the last section summarizes and concludes with a discussion regarding policy implications.
II. BACKGROUND

Since Congress passed the Pregnancy Discrimination Amendment (PDA) in 1978, if not before, the feminist legal community had been acutely aware that traditional maternity-leave programs were woefully inadequate. Most critically, they were state- or employer-specific: there was no national policy; indeed, the United States stood alone among industrialized nations in not guaranteeing women their jobs after they took leave after pregnancy.

2013 marks the 20th anniversary of the Family and Medical Leave Act (FMLA), drafted by the National Partnership for Women and Families and signed by President Clinton in 1993. It is the first and only national law in the United States designed to help Americans meet the dual demands of work and family. The FMLA guarantees eligible employees up to 12 weeks of unpaid leave each year to care for a newborn, a newly adopted child or a seriously ill family member, or to recover from their own serious health conditions, including pregnancy. The FMLA is available to all workers who are employed by businesses with 50 or more employees – or by public agencies, including schools and state, local and federal employers – who have worked for that employer for at least one year and for 1,250 hours within the last 12 months [FMLA (1993)].


c Founded in 1971 as the Women’s Legal Defense Fund, the National Partnership for Women & Families is a nonprofit, nonpartisan organization located in Washington, D.C. The organization promotes fairness in the workplace, reproductive health and rights, access to quality, affordable health care, and policies that help women and men meet the dual demands of work and family.
The FMLA, although a positive first step in the provision of a better quality of life for American workers, falls short of completely securing economic and employment security of Americans, specifically women. Currently, the FMLA does not guarantee paid leave for any employees in the United States. Approximately 40 percent of the workforce is not eligible for leave under the FMLA, and many of those who are cannot afford to take unpaid leave. \(^d\) In the 20 years since its passage, the workforce, the economy and family caregiving responsibilities have changed dramatically. Women now make up roughly half of the workforce, and many families need two incomes to make ends meet. However, the burden of taking parental leave continues to fall largely on the female population, as women are still considered to be primary caregivers to a household’s children [Sayer (2005)].

The U.S. labor force has changed dramatically in the last 60 years, and one of the most notable attributes of that change has been the change in gender structure. Women in the labor force have expanded their numbers at a significantly expedient rate in the last fifty years. The high growth rate of women in the workforce can be explained by the rapid increase of the labor force participation of women, which hovered around 35 percent in 1950 but climbed to 60 percent in 2000 [Toosi (2002)]. Similarly, both the number and share of women in the workforce have increased significantly. World War II and the two decades following served as catalysts for this change in the labor force, as the U.S. economy grew exponentially and the American middle class began to experience increases in productivity, higher standards of living, and wider access and opportunities to enroll in higher education. As a result, the growing U.S. economy increased its demand for labor, and recent social movements such as the civil rights and women’s

movements, coupled with recent legislation promoting equal employment opportunities for women, created a more welcoming atmosphere in which women could join the workforce. Alongside these changes, many demographic and economic factors were altering the behavior of women altogether. Women began to delay marriage and stay single longer, and those who did get married did so later in life, increasing the age of women at their first marriage. Women also began to stay in school longer and achieved higher educational levels than ever before, and as a result began to pursue actual careers. Due to the delay of marriages, women began to have children at older ages, reducing the number of children born to a family and the overall birth rate. As childcare improved, women did not have to wait for their children to enter school before joining the workforce, fostering longer tenures in their jobs and prolonging of careers. Lastly, the increasing divorce rates have forced women to be increasingly self-reliant, which increased their labor force participation rate. The results of these changes were apparent fairly quickly. Between 1970 and 1980, for example, the labor force participation rates of women 25–34 and 35–44 increased by roughly 20 percentage points and 14 percentage points, the most significant rise of participation in the labor force by a single group [Toosi (2002)]. Also, the difference between the participation rates of women and men has been decreasing at a steady pace between 1950 and 2000.

The increase of women in the labor force is encouraging, but many have studied the concept of the “glass ceiling” for women – the idea that there is in fact an invisible upper limit in corporations and other organizations for women, and it is extremely difficult for them to rise professionally. It is characterized as “glass” because it is not typically a visible barrier, and as a result, a woman may not be aware of its existence until she "hits" the barrier. The concept was
studied extensively and popularized in the 1980s, and many believe it persists today. Many factors play into the glass ceiling: women continue to be the primary caregivers in the home, making it difficult to balance work and home life; unequal pay rates are a reality; and finally, idea that women lose out on involvement and advancement in their jobs if they take maternity leave. Men, by contrast, who may or may not take time off for the birth of a child, do not need to physically recover from the birth of their child. In 1991, the Federal Glass Ceiling Commission was established by Congress to gather information and study opportunities for and barriers to advancement for women and minorities. In 1995, the 20-person bipartisan commission found that a mere three percent of senior management positions at Fortune 1000 and Fortune 500 companies were held by women.\

Another professional issue women are battling is the problem of the gender wage gap. On June 10, 1963, President Kennedy signed the Equal Pay Act (EPA) in the United States, which was intended to eliminate wage discrimination based on gender. Prohibitions on sex discrimination in the 1964 Civil Rights Act were intended to strengthen the EPA, as well as several landmark court cases in the 1970s. *Schultz v. Wheaton Glass Company* (1970, U.S. Court of Appeals for the Third District) ruled that all jobs needed to be substantially equal – for example, an employer cannot just change the job title to justify paying a woman less than a man. [Brunner (2012)]. *Corning Glass Works v. Brennan* (1974, U.S. Supreme Court) ruled that employers could not pay women lower wages because that is what they traditionally received at the “going market rate” [Brunner (2012)]. Other legislative efforts attempted to strengthen the

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\[e\] Federal Glass Ceiling Commission Report, “Good For Business: Making Full Use of the Nation's Capital.” (1995). The report found that women and minorities make up two-thirds of the population and 57 percent of the workforce yet account for only 3 percent of senior management positions at Fortune 1000 industrial corporations.
EPa as well, most notably with the Paycheck Fairness Act (PFA) and the Lilly Ledbetter Fair Pay Act (LLFPA) of 2009. The LLFPA “ensures that individuals subjected to unlawful pay discrimination are able to effectively assert their rights under the federal anti-discrimination laws…each discriminatory paycheck (rather than simply the original decision to discriminate) resets the 180-day limit to file a claim” [NWLC (2013)]. The PFA, intended to further strengthen the EPA, has been less successful; it has been twice introduced and twice rejected by the U.S. Congress, most recently in 2012. In the 50 years since the passage of the EPA, women in the United States were still paid roughly 77 cents for every dollar that men were paid [Harmann (2013)]. The gender wage gap persists to this day, and the United States is not unique in suffering from this phenomenon. Countries around the world experience the gender wage gap in varying degrees, and many believe that the gender wage gap persists in part because of women coming into their childbearing years. Joan Williams, a professor at the University of California Hastings College of Law discussed the term "maternal wall" recently in an interview with NPR, referring to “discrimination against hiring or promoting mothers based on the assumption she will be less committed to her job” [Noguchi (2013)]. In the United States, studies have shown that women actually experience a slight advantage in pay distribution immediately following the completion of a college graduation, but that advantage disappears shortly after. This evolution, some believe, is partly because employers anticipate that woman is more likely to leave a firm because she is planning on having children in the future, and therefore do not commit to equal pay [Noguchi (2013)].

Maternity leave benefits have evolved from essentially non-existence over the past fifty years as women in the labor force have increased. The provision of such benefits is believed to
help combat the “glass ceiling” phenomenon by way of helping guarantee that women return to
their jobs after taking time to give birth, and help them retain their careers and advance in the
ranks. In the 1960s, as women began to enter the workforce in unprecedented numbers,
maternity leave benefits simply did not exist, and upon becoming pregnant, women were
expected to drop out of the workforce entirely to raise their children. However, these sentiments
evolved after the women’s rights movement in the 1970s reached full force, and in 1978, the
PDA was passed, which prohibited employment discrimination on the basis of pregnancy or
childbirth. The act covered hiring and firing policies, as well as promotions and pay levels.
Additionally, changes to the federal tax code in 1976 allowed working families with a dependent
child to take a tax credit on child care costs. These initial steps by the federal government helped
hasten women’s return to work and their careers after giving birth. In the 1980s, flexible work
schedules and employer-provided childcare became crucial issues as women began to represent
almost half of the labor force. Additionally, a U.S. Supreme Court decision in 1987, *California
Federal Savings and Loan Association v. Guerra*,

> “upheld a California law requiring most
employers to grant pregnant women four months of unpaid disability leave and the right to return
to their same job” [Downs et al (2001)]. The FMLA followed shortly thereafter in 1993, but left
the U.S. without a legally mandated paid parental leave system that remains to this day. Most
mothers and fathers have to work and will be in the workforce when they have children.

According to studies by the Center for American Progress, “in 2010, among families with
children, 49% were headed by two working parents and 26% by single parents” [Center for
American Progress (2013)]. In 2009, employed wives of dual-earner families contributed 47% of

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U.S.
total family earnings. In most cases, the income of both parents is now necessary to a family’s financial well being.

Unpaid leave is a benefit provided by the FMLA may be difficult for many families to access because of financial constraints, potentially making it a luxury good. After giving birth, many women are forced to make arrangements for childcare while planning a quick return to work, or they simply do not return at all. These circumstances tend to aggravate economic inequality, as families with financial means generally have more flexibility in postponing their return to work, have more time to dedicate to their infants, and can afford quality child care. Women in particular continue to work for companies that do not qualify for paid maternity leave, or do not even offer unpaid maternity leave, and some of their jobs are not guaranteed upon their return. Many argue, therefore, that the United States’ competitiveness in terms of promoting opportunities for women to successfully combine work and family is falling far behind many other countries.

Historically, a coalition of labor, women’s, child and health advocates have promoted paid family leave. Many have emphasized the well-documented public health benefits, the peace of mind of employees, benefits for children and the benefits that companies can receive by fostering friendly leave policies. Opponents of maternity leave often argue that the costs of providing paid leave are too high for businesses, and discourage jobs from being created [Dorfman and Lingas (2003)]. Despite complaints of cost, we see that other competitive economies around the world such as Germany, the United Kingdom, and Japan have all demonstrated that it is possible and feasible to offer programs of maternity leave for families. In regards to global trends, the United States is one of four countries in the world that does not
legally mandate paid maternity leave, accompanied by Lesotho, Papua New Guinea, and Swaziland.

The International Labor Organization (ILO) created the first global standard in 1919 aimed at protection of workingwomen before and after childbirth: the Maternity Protection Convention. It calls for a minimum 12-week leave although a 14-week leave is recommended. In countries that provide cash benefits through social security, the ILO standard says that a woman should be paid at a rate of not less than two-thirds of her previous insured earnings, with full health benefits.\(^8\) Today, over 160 countries around the world provide paid maternity leave and health benefits by law, including most industrialized nations.

The European Union, for example, has set minimum standards for member states' legislation pertaining to maternity and parental leave. During maternity leave, women must receive their salary or an “adequate allowance,” as well as any other contracted benefits they receive [Ray (2008)]. Parental leave allowances must be at least three months for each parent, and workers must be guaranteed to return to the same or an equivalent position after taking their parental leave. These policies seem liberal, but are actually indicative of the countries themselves, many of which are social welfare states that have traditionally provided universal benefits to its citizens, like France and Denmark. Separately, in Japan, women who are enrolled in the national Employee Health Insurance program receive payments of sixty percent of their usual salary. In cases of extended maternity leave due multiple births, maternity pay is also extended [Ray (2008)]. However, while maternity leave is nearly universally guaranteed,

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\(^8\) Insurable earnings are any types of earnings generated from insurable employment. Insurable earnings include any type of benefits that are paid to an employee in exchange for services rendered. Insurable earnings may also be provided in some other such as a benefit or gratuity. The most common examples of insurable earnings have to do with the wages and salary provided to employees for services rendered.
maternity pay is not. This may explain why Japanese women are more likely to “opt-out” of the workforce, as will be discussed in my literature review. Japan is not traditionally a social welfare state, and relies heavily on its capitalistic market.

Maternity policy, both in the U.S. and globally, has evolved with the steadily increasing labor force participation rate of women. It is unclear if the U.S. will follow in the footsteps of similar nations that already provide paid parental leave, but it seems likely that the evolution of maternal health benefits remains unfinished.
III. Literature Review

Given the discussion of the importance of maternity leave policies around the world and their possible implications for female participation and success in the workforce, it is not surprising that a voluminous literature has developed, specifically in the second half of the 20th century, and most recently in the last several years. I do not seek to present an exhaustive review of the literature in this analysis, but instead I attempt to present and summarize a selection of mostly recent papers that exhibit various levels of similarity to the subject and study. By doing so, I create a context within which this paper exists and for its original contribution – is the lack of a comprehensive paid maternity leave policy a significant indicator of the dearth of women in management and leadership positions in the workforce?

The literature I review here divides roughly into four groups. The first group of papers explores the historical background of parental leave policies in the United States and other countries. The second group studies continuity of employment after women decide to take maternity leave. The third group examines the relationship between female achievement in the workforce and the presence of parental leave policies. The final group explores economic implications of such policies. In some ways this study attempts to bridge across these categories.

Historical Analysis

Much of the literature explores the history of maternity policies around the world, and how legislative activity (or lack thereof) can lead to policy research implications. For example, [Froberg, Gjerdingen & McGovern (1992)] examined the heavy legislative activity immediately prior to the implementation of the 1993 Family & Medical Leave Act in the United States, and
summarized both proponent and opponent points of view regarding the necessity of a maternity leave policy quite succinctly. [Silverstein (1991)] heavily advocates the potential positive outcomes of maternal employment, and argues that the United States prior to 1993 perpetuated the archetype of the “supermom” – the woman who can effortlessly succeed in the workforce and handle raising children at the same time. Essentially, the U.S. chose to ignore the mass entrance of women into the work force, and did not respond with changes that could support the needs of families with two working parents.

In their analysis of the history of maternity leave policy in the United States, [Dobbin & Kelly (1999)] found that American employers created maternity leave programs in the 1970s and 1980s (before FMLA’s passage in 1993) in order to comply with existing laws, notably the Pregnancy Discrimination Act of 1978, and not necessarily in response to a change in the labor market, namely feminization (the increasing female workforce, or companies obtaining a large proportion of female employees). Dobbin and Kelly’s findings refute fears that group-specific policies such as maternity leave actually harm the intended beneficiaries, and suggest that these policies actually can improve the quality of the workplace for women. The authors present recent evidence that paid maternity leave has not limited the participation of European female workers, calming fears that these policies, generally expensive and heavily beneficial to women, place an unnecessary economic burden on the market. Additionally, [Caplan-Cotenoff (1988)] examined the historical background of pregnancy discrimination litigation and legislation prior to the FLMA, and noted that a federal parental leave policy could help fill the gaps in comprehensive coverage for women. Caplan-Cotenoff draws on other nations for possible examples of best practices.
Wiseman (2002) explores the flaws in the international law that covers maternity and workers, and asserts that the language is intentionally vague. This in turn allows nations to fail to enact laws that adequately promote equality of women in the workforce. After performing a comparative analysis between the United States, China, Sweden and Mexico, Wiseman advocates for the standardization of international labor policies in regards to maternity through the International Labor Organization, and asserts that this will help combat hiring discrimination in places like Mexico and China. Wiseman notes that the United States falls behind the other three countries by not providing paid maternity leave. In “Mothers on the Job: Maternity Policy in the U.S. Workplace,” [Vogel (1993)] reviews the changes in maternity policy since the enactment of the Pregnancy Discrimination Act, and notes that advances in maternity policies have required employers to ignore pregnancy if it does not affect a women’s job performance, and combat the idea that women are unequal from men in the workforce because of their ability to get pregnant.

**Continuity of Employment**

Another body of literature explored the continuity of working after women leave to care for their children. [Hewlett and Luce (2005)] discuss an essential problem: the dearth of ways for professional women to get back into the labor market at the same pay they received before they left, for a variety of reasons, most notably initial maternity leave and subsequent childcare. The authors found that as market and economic factors align in ways guaranteed to make talent constraints and skill shortages huge issues again, employers must learn effectively to reintegrate the tide of highly qualified, committed women that need to take time out of the workplace. They suggested helping women maintain connections to their previous jobs that will allow them to
reenter the workforce without being marginalized for the rest of their lives. Similarly, but more narrowly, [Ohara et al. (2012)] attempted to explore factors affecting the quitting rate among female workers in Japan who become aware they are pregnant, which was found to be higher than in other industrialized countries. A key condition found to encourage work continuation after becoming aware of pregnancy, among others, included having an established legal maternity protection system in the workplace. A comparative analysis between the United States, Sweden, and the Netherlands was performed by [Bekker et al. (2000)], in which women in the three countries tended to contribute more effort to childcare and less to the workplace than men do, and as a result, their total workloads appeared to be somewhat greater than for men. Subsequently, bigger workloads may negatively affect women's health, especially women that exhibit characteristics like maintaining a managerial or executive position and simultaneously caring for children. It is possible that many women, faced with these adverse challenges, choose to opt out of the workforce entirely.

[Han, Ruhm & Waldfogel (2009)] examined trends in maternal employment and leave-taking after birth of a child in the United States and analyze the extent to which these behaviors are influenced by parental leave policies. Their main finding suggests leave expansions are associated with increased leave-taking by both mothers and fathers. The magnitudes of the changes are larger for college-educated or married mothers than for their less-educated or single counterparts, and find that women are far more likely to be employed before childbirth than after. I will attempt to examine if having a paid maternity policy versus an unpaid one affects the likelihood of returning to the workforce.
Finally, [Waldfogel (2001)] examines the types of policies that 10 Organization and Economic and Community Development (OECD) countries use to support new parents, and compares them to U.S. policy. Wage replacement was found to be a key difference in the OECD countries and the U.S., and it was found that leave policies do influence women’s employment. Contrary to much of the literature, Waldfogel suggests it is possible that a long period of leave may make it harder for a woman to maintain attachment to her career, and it may have a negative impact on wages overall, since employers could view women as temporary employees and fail to promote them. However, longer leaves may result in improved health outcomes for women and children. Similarly, [Gornick et al (1996)] find that “policy configurations shape the employment patterns of mothers, primarily improving alternatives to withdrawing from employment for mothers who choose to combine employment and parenting” (Gornick et al 1996).

**Female Success in the Workforce**

A further body of literature discusses female success in the workforce and barriers to management and executive positions. [Schlein (2001)] finds that there are many psychological barriers to success for women in the workplace around the world regardless of other commonly held beliefs, chief among them the view that women are less likely than men to possess the stereotypical requisite “male-dominated” characteristics for management positions. This may help explain why it is difficult to increase the level of women in management positions. Similarly, [Heilman (2001)] argues that because of an existing gender bias in the workplace, performance reviews are sometimes negatively biased, and unfortunately, competency is not always a guarantee that a woman will advance to the same managerial position as a man. It is
possible that having to take unpaid maternity leave could be an influencing factor in performance reviews.

[Ackerly-Hernandez & Stone (2013)] analyzed a sample of 54 mothers who “opted out” of professional jobs. Their analysis reveals that features of women's workplaces are “conducive to the creation and maintenance of flexibility stigma and bias and that women working flexibly are subjected to various forms of stigmatizing treatment,” which plays a role in their decision to suspend or leave their careers (Ackerly-Hernandez 1). The inflexibility associated with maternity leave may be a factor in these decisions. The research of [Berdahl & Moon (2013)] suggests that women are the only ones that suffer negative professional consequences if they have children. These unequal consequences can be attributed to stereotypes about women's roles as caregivers as opposed to breadwinners.

**Economic Implications**

Another body of literature explores the economic implications of women in the workforce, and its relationship to maternity leave. To begin with, [Blau & Kahn (1996)] conducted an international comparative study examining the general wage gap and gender earnings differentials, and found that the United States has a much higher gap than other industrialized countries. Findings reveal the larger penalty in the United States for those with low skill levels or employed in low-wage sectors, many of them women.

[Waldfogel (1998)], identifies and explores the “family gap” between the wages of mothers and other women in a comparative study between the United States and the United Kingdom. Waldfogel finds that mothers are far behind non-mothers in this respect, and women in both countries who had leave coverage and returned to work after childbirth received a wage
premium that offset the negative wage effects of children. This suggests that comprehensive maternity coverage can help keep women from dropping out of the workforce, and provides an opportunity for women to reach a managerial or executive level. [Ruhm, Rossin-Slater & Waldfogel (2013)] used California’s first in the nation paid family leave (PFL) program to examine how paid leave affects leave-taking by mothers following childbirth, as well as subsequent labor market outcomes. They found that the California program more than doubled the overall use of maternity leave, and that wage incomes may have risen as well.

[Ruhm (1998)] examined parental leave mandates in Europe (where the vast majority provide lengthy paid parental leave), and found that rights to shorter periods of paid parental leave (3 months or shorter) increase the employment-to-population ratio by three to four percent while having limited effects on wages. Conversely, longer periods of paid parental leave (nine months) actually decrease hourly earnings by three percent. [Akgunduz & Plantenga (2013)] also investigated effects of parental leave legislation on various labor market outcomes of women in 16 European countries for the period between 1970 and 2010. Similarly to Ruhm, the study found increases in participation rates associated with paid parental leave policies that diminished as the length increased.

Finally, [Baker & Milligan (2008)] found that the introduction of paid maternity leave increases the proportion of mothers employed but has little effect on the length of time they are at home with their infants. They also found, however, that longer entitlements significantly increase the period mothers take maternity leave, and that maternity leave entitlements of all lengths tended to increase job continuity with the employer women had before they took leave.
I also wish to explore the market structures that are conducive to paid parental leave policies. [Morgan & Zippel (2003)] examined the origins and consequences of paid childcare leaves in Austria, Finland, France, Germany and Norway. The authors found that childcare policies have historically been attractive for center-right governments that wish to contain unemployment and appeal to two-income families. However, the study asserts that childcare policies perpetuate the idea of “temporary homemaking,” which could negatively affect earnings and career paths for women. [Orloff (2009)] studied the relationship between systems of social provision and regulation and gender, and whether women can count on welfare states to provide adequate policies that promote gender equality. The results were mixed, but indicated that welfare states are more likely to provide such policies. Additionally, the findings of [Borrell, et al (2013)] support the assumption that social democratic welfare regimes best promote women’s health. Longer paid maternity leave was associated with better mental health for women and longer breastfeeding periods.

In this paper, I contribute to understanding in several ways. First, I examine the effect of presence, length, and provider of paid maternity leave policies on women as they attempt to equally participate and excel in the labor market. Second, I add to the slightly smaller literature on the relationship between market structure and the presence of paid maternity leave policies. Lastly, I perform a comparative analysis between the United States (the sole remaining industrialized nation without paid maternity leave) and other nations on the economic implications of not providing families the chance to take paid maternity leave. On a final note, although this review is by no means an exhaustive overview of existing literature, I will also be
conducting a comprehensive cross-country analysis, something that I have not yet come across in my research.
IV. CONCEPTUAL FRAMEWORK & HYPOTHESIS

In order to examine whether and how paid parental leave policies influence the level of female leadership and advancement in the workplace, I develop a theoretical model described below. The model provides a framework for the discussion that follows by illustrating the factors that should, in theory, influence a country’s proportion of women in the workplace and their ability to succeed professionally. I developed the empirical models that follow with this framework in mind, and the empirical models test the implications of the theoretical model.

1. Female Professional Success = f(Parental Leave Policy, Gender Wage Gap, D, μ)

The logic of the model is that there are social conditions existing in almost all professional environments that have the potential to inadvertently prohibit women from succeeding in their careers to a level that is equitable to men. If an employer does not offer paid parental leave to its female employees, there is a chance that women are less likely to return to their jobs after leaving to give birth to a child. Likewise, there are certain implications for the likelihood of return to work regarding the length of parental leave and the percentage of wages paid during that time. If women are less likely to return to work because of these benefit conditions, the theory suggests that women are not given the same opportunities to retain their careers and advance to the executive or manager level if they decide to take parental leave or the benefits are not enough to retain their jobs. Paid parental leave policies foster favorable working conditions that should foster job satisfaction and increase the likelihood of women remaining in the workplace, giving them equal opportunity to pursue leadership positions. This in turn is
expected to increase productivity of the general labor force, increasing economic activity of countries that offset the potential costs of implementing a paid parental leave policy. If women have the guarantee of their jobs upon their return, and the support of wages during the leave that they take to give birth to their children, they will be more motivated to remain in the workforce and not “opt out” to raise their children. Finally, it is expected that labor markets in nations with lower gender wage gaps are more conducive to the presence of parental leave policies, suggesting that those countries will have higher levels of female leaders in the workforce. I next present and explain the data chosen to construct my empirical models.
V. DATA & METHODS

Pursuant to my background, literature review, and theoretical model presented previously, I collected data on three primary data sources as detailed below. First I collected data on the percentage of women’s participation in the labor force for the United States and countries around the world. I also collected data on the percentage of women in leadership positions in those countries – in terms of both participation in government and the share of women as legislators and managers. For my comprehensive comparative analysis, I examined the percentage of women in the labor force, in leadership positions and their economic systems across all countries, their labor markets, and the gender wage gaps persisting in many countries. Finally, I also collected data on the length of time that has passed since a country first introduced some form of parental leave legislation into their legal systems.

My secondary dataset is a merger of two original data sets, the first being The World's Women 2010: Trends and Statistics from the United Nations (UN) Data 2013. This dataset presents statistics and analysis on the status of women and men in the world, highlighting the current situation and changes over time. Social indicators covering a wide range of subject-matter fields are compiled by the Statistics Division, Department of Economic and Social Affairs of the United Nations Secretariat, from many national and international sources. In particular, the part of the World’s Women dataset I use covers parental leave and related benefits, which are derived from the UN Statistics and Indicators on Women and Men, the ILO Maternity protection database, and the United States Social Security Administration (SSA). Specifically, I used the section on maternity leave benefits, which is pooled data of all countries’ available information regarding the length of maternity leave guaranteed, the percentage of wages paid over that time
period (if there is a paid parental leave policy), and the provider of said benefit (government or employer, or some combination). The data are a snapshot of the status of maternity leave benefits from all countries in the year 2009. This information is incredibly useful because it provides some of the key independent variables I will be using in my empirical framework.

A summary of descriptive statistics is provided below. In order to merge this dataset, I was required to re-form the data in several ways. The data for one of the variables, length of maternity leave, came in various forms – weeks, months, days, and working days. In order to standardize the data, I decided to change all data to “days,” and will discuss this in my results section. Another variable, percent of wages paid over the length of maternity leave, is reported as more than one value in a multitude of countries, namely because of the dual providers of benefits in some countries. I took the average of the two wage percentages, deciding that this would be sufficient to look at the overall and average amount of wages paid during length of a maternity leave. I was also forced to convert this variable from a string to a numeric variable upon importing the file to STATA. Finally, I broke up the “provider of benefit” variable into three separate dummy variables: employer, social insurance, and social security. Many countries have dual providers, and this is worth noting in my results section.
Table 1: Descriptive Statistics – UN Data

<table>
<thead>
<tr>
<th>Variable</th>
<th>Variable Description</th>
<th>Observations</th>
<th>Mean</th>
<th>Std. Dev.</th>
<th>Min.</th>
<th>Max</th>
</tr>
</thead>
<tbody>
<tr>
<td>days_matleave</td>
<td>Length of maternity leave, in days</td>
<td>167</td>
<td>111.560</td>
<td>70.173</td>
<td>42</td>
<td>480</td>
</tr>
<tr>
<td>wages_pct</td>
<td>Percentage of wages paid during a period of maternity leave</td>
<td>160</td>
<td>86.256</td>
<td>22.252</td>
<td>0</td>
<td>100</td>
</tr>
<tr>
<td>bp_empl</td>
<td>Employer is benefit provider</td>
<td>167</td>
<td>.443</td>
<td>.498</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>bp_socins</td>
<td>Social insurance is benefit provider</td>
<td>167</td>
<td>.371</td>
<td>.484</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>bp_socsec</td>
<td>Social security is benefit provider</td>
<td>167</td>
<td>.359</td>
<td>.481</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>OECD</td>
<td>member of the OECD</td>
<td>648</td>
<td>.218</td>
<td>.413</td>
<td>0</td>
<td>1</td>
</tr>
</tbody>
</table>

The table below is a sampling of countries that illustrate the range and values for several of my key variables. The sampling is not exhaustive, but draws from all areas of the world.
Table 2: Values for Sample Countries

<table>
<thead>
<tr>
<th>Variable</th>
<th>Days_matleave</th>
<th>Wages_pct</th>
<th>Bp_empl</th>
</tr>
</thead>
<tbody>
<tr>
<td>United States</td>
<td>84</td>
<td>0</td>
<td>N/A</td>
</tr>
<tr>
<td>Russia</td>
<td>140</td>
<td>100</td>
<td>No</td>
</tr>
<tr>
<td>United Kingdom</td>
<td>365</td>
<td>90</td>
<td>Yes</td>
</tr>
<tr>
<td>Japan</td>
<td>98</td>
<td>67</td>
<td>Yes</td>
</tr>
<tr>
<td>China</td>
<td>90</td>
<td>100</td>
<td>No</td>
</tr>
<tr>
<td>Canada</td>
<td>119</td>
<td>55</td>
<td>No</td>
</tr>
<tr>
<td>Brazil</td>
<td>120</td>
<td>100</td>
<td>No</td>
</tr>
<tr>
<td>India</td>
<td>84</td>
<td>100</td>
<td>Yes</td>
</tr>
<tr>
<td>Thailand</td>
<td>90</td>
<td>75</td>
<td>No</td>
</tr>
<tr>
<td>Norway</td>
<td>357</td>
<td>90</td>
<td>No</td>
</tr>
<tr>
<td>Israel</td>
<td>98</td>
<td>100</td>
<td>No</td>
</tr>
<tr>
<td>Pakistan</td>
<td>84</td>
<td>100</td>
<td>No</td>
</tr>
<tr>
<td>Kenya</td>
<td>84</td>
<td>100</td>
<td>Yes</td>
</tr>
<tr>
<td>Kazakhstan</td>
<td>126</td>
<td>Information N/A</td>
<td>Yes</td>
</tr>
<tr>
<td>Ethiopia</td>
<td>90</td>
<td>100</td>
<td>Yes</td>
</tr>
<tr>
<td>Qatar</td>
<td>50</td>
<td>100</td>
<td>Yes</td>
</tr>
<tr>
<td>New Zealand</td>
<td>98</td>
<td>100</td>
<td>No</td>
</tr>
<tr>
<td>Costa Rica</td>
<td>112</td>
<td>100</td>
<td>Yes</td>
</tr>
<tr>
<td>Egypt</td>
<td>90</td>
<td>100</td>
<td>Yes</td>
</tr>
</tbody>
</table>
The second dataset I use to merge with UN Data is a compilation of the World Bank’s (WB) World Development Indicators (WDI) 2013. These data present the most current and accurate global development data available. WDI establishes the benchmark against which development progress is measured, and provide internationally comparable statistics about development and the quality of men and women’s lives around the globe. WDI data are presented by country, by topic, and by indicator. These time-series paneled data are collected annually, and cover 1960 to 2012. Topics covered by the WDI I will use include: aid effectiveness; economic policy and external debt; education; financial sector; gender; health; labor and social protection; poverty; private and public sector; and social development. The indicators are available for direct download into STATA, and thus, no alterations were required with these data. These data are incredibly useful because they provide more of the key independent variables I will be using in my empirical framework – the labor force participation rates for women, and the level of government expenditure on health benefits, for example. WDI also provide the closest measure I can find to my dependent variable of interest: women’s advancement in the workforce. This is measured by the percent total of female managers, executives, and legislators in each country. Finally, WDI provide the demographic variables I use, such as level of education attained for women and the CPIA business regulatory environment rating.

A summary of descriptive statistics for a sampling of relevant WDI is provided below. I merged the two data sets by country name, and performed two separate merges: one with WDI from 2009, and one with WDI from 2011.
Table 3: Descriptive Statistics – WDI

<table>
<thead>
<tr>
<th>Variable</th>
<th>Variable Description</th>
<th>Observations</th>
<th>Mean</th>
<th>Std. Dev.</th>
<th>Min.</th>
<th>Max.</th>
</tr>
</thead>
<tbody>
<tr>
<td>ge_per_rnk</td>
<td>Government Effectiveness: Percentile Rank</td>
<td>632</td>
<td>50.016</td>
<td>29.037</td>
<td>0</td>
<td>100</td>
</tr>
<tr>
<td>sa_oct_expen</td>
<td>Expenditures in benefits of Family/Child allowances</td>
<td>2</td>
<td>352.728</td>
<td>168.646</td>
<td>233.478</td>
<td>471.969</td>
</tr>
<tr>
<td>sa_oct.gen_pop</td>
<td>(%) Generosity of Family/Child allowances</td>
<td>2</td>
<td>3.91’2</td>
<td>2.386</td>
<td>2.225</td>
<td>5.599</td>
</tr>
<tr>
<td>FemLeader</td>
<td>Female legislators, senior officials and managers (% of total)</td>
<td>139</td>
<td>30.915</td>
<td>8.438</td>
<td>4.332</td>
<td>51.641</td>
</tr>
<tr>
<td>Femminister%</td>
<td>Proportion of women in ministerial level positions (%)</td>
<td>233</td>
<td>16.617</td>
<td>11.685</td>
<td>0</td>
<td>63.2</td>
</tr>
<tr>
<td>Femparl%</td>
<td>Proportion of seats held by women in national parliaments (%)</td>
<td>649</td>
<td>17.848</td>
<td>10.472</td>
<td>0</td>
<td>56.3</td>
</tr>
<tr>
<td>LFpartrate</td>
<td>Labor force part.rate, fem.</td>
<td>642</td>
<td>57.506</td>
<td>16.626</td>
<td>13.5</td>
<td>90.2</td>
</tr>
<tr>
<td>GDPgrow</td>
<td>GDP per capita growth (annual %)</td>
<td>474</td>
<td>1.277</td>
<td>4.587</td>
<td>-17.545</td>
<td>18.689</td>
</tr>
<tr>
<td>femlitrate</td>
<td>literacy rate, adult female (% of females ages 15 and</td>
<td>116</td>
<td>80.861</td>
<td>20.491</td>
<td>20.288</td>
<td>99.823</td>
</tr>
</tbody>
</table>
Finally, I added several other variables to my model and merged them with my existing data set. I took the International Labor Organization (ILO)’s data on gender wage gaps in OECD countries and merged them with my data set, along with a self-constructed data point on the length of time passed since a country first introduced some form of parental leave legislation into their legal system. This information was also obtained through the ILO, and merged into the overall data set.

**Table 4: Descriptive Statistics – ILO**

<table>
<thead>
<tr>
<th>Variable</th>
<th>Variable Description</th>
<th>Observations</th>
<th>Mean</th>
<th>Std. Dev.</th>
<th>Min.</th>
<th>Max.</th>
</tr>
</thead>
<tbody>
<tr>
<td>YearsPL</td>
<td>number of years since first PL legislation</td>
<td>443</td>
<td>24.251</td>
<td>13.823</td>
<td>1</td>
<td>71</td>
</tr>
<tr>
<td>GWG</td>
<td>percent difference between male and female earnings</td>
<td>131</td>
<td>22.063</td>
<td>10.876</td>
<td>.1</td>
<td>45.2</td>
</tr>
</tbody>
</table>

---

\(^h\) The International Labor Organization makes a set of archives available of every nation’s first constitution and any iteration since then. I used the search terms “parental leave” and “employment protection” to identify every country (that had data available) that includes legislation on parental leave policies, and was able to find the first year that each country introduced such legislation. I then calculated the amount of time had passed since the country first included parental leave language into its constitution or legal code, and used that as a data point.
In the next section, I explain how I incorporate these data into several tangible empirical models to formally test my original hypotheses.
VI. Empirical Model

To test the aforementioned theoretical model, I will use three sets of regressions to determine the effect, if any, of parental leave length, the gender wage gap, and the amount of time passed since a country first introduced parental leave legislation on the percentage of female leadership. The first set of regressions will include a proxy variable for female leadership (the percent of total female legislators, senior officials and managers). These regressions will utilize two key variables to identify the percent of wages paid during maternity leave and the length of said maternity leave afforded, and will attempt to control potential differences inherent in OECD countries. Furthermore, I will also control for years passed since a country first introduced some form of parental leave legislation in order to examine if that time (or even cultural changes) has allowed for a more successful implementation of that policy. Finally, I will also utilize two control variables for the passage of time.

I will run a second set of regressions that will test the same hypothesis, with the same assumptions and restrictions. However, in this set of regressions, the gender wage gap variable will be included as a separate independent variable, and the model will not control for OECD countries. Again, these regressions will be run on observations that include the passage of time through dummy variables and will include several relevant demographic control variables. Finally, I will run a third set of regressions, this time using the gender wage gap as the key dependent variable in order to determine if the percentage of female leadership and maternity leave length in a given country has an effect on the gender wage gap. If that turns out to be the case, it is possible that the gender wage gap and maternity leave policies are more integrally
related than originally thought. This regression will also include the key control variables described above.

2. \[ \text{FemLeader} = b0 + b1 \text{days_matleave} + b2 \text{wages_pct} + b3 \text{bp_empl} + b4 \text{GDPgrow} + b5 \text{Femparl\%} + b6 \text{PubhealthS} + b7 Y2010 + b8 Y2011 + b9 \text{YearsPL} + b10 \text{OECD} + b11 \text{Femlitrate} + b12 \text{Mktcaprate} + \mu \]

Where:

- FemLeader is the percent of total female legislators, senior officials and managers.
- days_matleave is the length of maternity leave, in days.
- wages_pct is the percentage of wages paid during a period of maternity leave.
- bp_empl is a dummy variable indicating the employer is the benefit provider.
- GDPgrow is the GDP per capita growth (annual %).
- Femparl\% is the proportion of seats held by women in national parliaments (%).
- PubhealthS is the health expenditure, public (% of government expenditure).
- Y2010 is a dummy variable indicating the most recent year for available data on maternity leave policies is 2010.
- Y2011 is a dummy variable indicating the most recent year for available data on maternity leave policies is 2011.
- YearsPL is a numeric variable indicating the number of years passed since a nation first introduced some form of parental leave legislation.
- OECD is a dummy variable indicating the country is a member of the OECD.
- Femlitrate is the literacy rate, adult female (% of females ages 15 and above).
- Mktcaprate is the market capitalization of listed companies (% of GDP).
- \( \mu \) is the random error.

(A version of this regression will also be run, without the last two variables.)

FemLeader serves as a proxy for female success in the workforce and is one of the two primary dependent variables in my set of regressions. I expect many of my key independent variables discussed here to have a positive association with FemLeader, which I will explain shortly. I also collected data on the percent total of women in ministerial positions, in parliament positions, and leaders in the technology industry, but I chose to use a dependent variable that attempted to encompass all of these data. They are all limited because the intent of the model is
to identify the causes of female advancement and success in the workforce, and they may not completely represent what “advancement” or “success” actually mean.

The variables days_matleave09, wages_pct09, and bp_empl09 are all variables that turned out to be the key independent variables in my models, and they will hopefully demonstrate the association between female success in the workforce and the presence of a paid parental leave policy. In particular, I expect each additional day of maternity leave provided to women in the workforce (by country) to have a significantly positive association with the total percent of female leaders in that country. As previously discussed in my background and literature review sections, longer maternity leave periods have been shown to enhance continuity of employment for women, and it is possible that continuity of employment could both help reduce the inherent gender biases in the workforce and keep women from being derailed from successful careers (thus increasing the likelihood of advancement and managerial positions filled by females). That being said, I am aware of previous research that suggests longer maternity leaves have the potential to dis-incentivize women from returning to the work force altogether, so I am open to the possibility that the relationship between FemLeader and days_matleave may be too insignificant to analyze, or may even exhibit a small negative association. I also expect that each additional percent of wages paid during a given maternity leave will be associated with an increase in the total percent of female leaders in the workforce. I expect this because of I assume there is a possibility that wages paid during a period of absence from a job will help to increase the feeling that the job is secure, signaling a level of confidence in female employees and their value which will incentivize women to return to their place of employment. And as previously discussed, continuity of employment has been shown to increase the probability of women
attaining higher levels in their careers. Undoubtedly, I have high expectations for this relationship to be a positive one. Lastly, I included $bp_{empl}$ in my model to examine whether the relationship between wages during maternity leave paid by a private employer has a positive association with the total percent of female leaders. I am not entirely certain that the association will be a positive one, and I included the variable in the model to test whether wages paid by a private employer increases female leadership (if the relationship is positive) or if it negatively influences female leadership, suggesting that perhaps wages paid during maternity leave should be paid by the federal government – a possible policy recommendation I will explore in later sections.

There are several economic indicator variables in the model as well, particularly $Years_{PL}$ and OECD. I expect that OECD countries will have an association of an increase in the level of female executives in the workforce, because OECD countries work to promote policies that will improve economic systems, suggesting a level of commitment to both their own economies and their labor force. Perhaps these economic indicators suggest better protections for civil liberties and employment equality, including maternity leave, that help to increase the percent of female leaders. I also expect that each additional year passed since a country first introduced some form of parental leave legislation will be associated with an increase in the total percent of female legislators, senior officials, and managers. Presumably, the longer amount of time a nation has to implement certain legislation, the more likely it is that the policy has been accepted in the society and has been in practice for some time. I believe countries that have had parental leave legislation for many years will have done a better job implementing a parental leave policy, and since my original hypothesis that strengthening maternity leave policies (i.e., increasing the
amount of time and percent of wages paid) will have a positive association with the percent total of female leaders, I expect nations with long histories of parental leave will be associated with higher levels of female leadership.

The remaining variables in my model are some of the control variables used for demographic and economic purposes. They include the literacy levels for women (\textit{femlitrate}), as well as the market capitalization of listed companies as a percent of a country’s GDP (\textit{mktcaprate}), GDP per capita growth as an annual percentage (\textit{GDPgrow}), and the percent expenditure on public health (\textit{pubhealthS}). In particular, I expect that each additional increase in the female literacy rate will have a positive association with female leadership, that countries with higher potential return on investments (\textit{mktcaprate}) will be positively associated with female leadership, that each additional percentage of GDP per capita growth will be associated with an increase in the percent total of female leaders, and that each additional percent of government expenditure on public health will be associated with an increase in female leadership. All of these control variables measure the “development” status of nations, and I expect that nations with higher indicators of development will be more likely to have stronger parental leave policies in place, and also provide more opportunities for women to succeed in the workforce. \textbf{Y2010} and \textbf{Y2011} are time dummy variables that control for data available on a country’s parental leave policy, and if the percent total of female leaders had increased since 2009 (the most recent data available for maternity leave policies). I expect the relationship to be a minimal positive association at best, simply because I do not expect a large increase in female leadership over a span of just two years. Finally, I included \textbf{femparl\%} in my model because I expect that higher percentages of women in national parliaments will have a positive association
with the percent total of female leaders. Increased participation of females in the public sector is expected to have several impacts: it is expected to indicate that women participate in the workforce (both public and private sectors), and perhaps it is more likely that more favorable parental leave policies are prevalent in countries with a higher percentage of female representatives.

3. \[ \text{FemLeader} = b0 + b1 \text{days_matleave} + b2 \text{wages_pct} + b3 \text{bp_empl} + b4 \text{GDPgrow} + b5 \text{Femparl\%} + b6 \text{Pubhealth} + b7 \gamma 2010 + b8 \gamma 2011 + b9 \text{Yearspl} + b10 \text{OECD} + b11 \text{GWG} + \mu \]

The second model in my regressions is extremely similar to the first regression, but includes one significant control variable that could present different results. The second model set eliminates several of the demographic variables (\text{mktcaprate} and \text{femlitrate}) due to missing observations, but includes the gender wage gap as a control variable. \text{GWG} indicates the percent difference between male and female earnings in each country, and I expect to see a negative association between the level of female leaders and the gender wage gap (i.e., the percent total of female leaders is expected to increase as the gender wage gap decreases), given that pay equality is likely indicative of women achieving the same professional levels as men. Essentially, as \text{GWG} decreases, women are being paid more and work is a more attractive option relative to other activities. The gender wage gap also serves as a potentially helpful control variable that could help explain why percent totals of female leadership are higher or lower, and I expect it to help strengthen the relationships between the other key independent variables and female leadership. I do not expect any of the relationships between the other independent variables and the percent total of female leaders to change as a result of \text{GWG} being added to the model.
4. \[ GWG = \beta_0 + \beta_1 \text{DAYS\_MATLEAVE} + \beta_2 \text{WAGES\_PCT} + \beta_3 \text{BP\_EMPL} + \beta_4 \text{GDP\_GROW} + \beta_5 \text{FemLeader} + \beta_6 \text{Pubhealth\$} + \beta_7 \text{y2010} + \beta_8 \text{y2011} + \beta_9 \text{YearsPL} + \beta_{10} \text{OECD} + \beta_{11} \text{GWG} + \mu \]

The third model in my regression set replaces my original dependent variable \text{FemLeader} with \text{GWG}. This will be done in order to explore the effect, if any, that maternity leave policies have on the gender wage gap. I expect the gender wage gap to decrease as the length of maternity leave and percentage of wages paid during that time increase. I expect this because the strength of a parental leave policy is usually indicative of a robust and comprehensive benefits package offered to workers in particular country, and I expect that nations with comprehensive parental leave policies are value civil equality, and are therefore more likely to have equal pay stipulations in their legislation. I also expect a negative sign for \text{FemLeader} in this model, because as the level of female executives in any given country increase, the gender wage gap should decrease because men and women are performing more of the same jobs at the same levels. This relationship, if statistically significant, will also be a positive indicator for dispelling endogeneity concerns.

In contrast to the previous two regressions, I expect largely negative associations between \text{GWG} and the other independent variables in the model. In particular, I expect that if the private employer (\text{bp\_empl}) pays wages during a maternity leave, it will be associated with a decrease in the gender wage gap, because if the private employer has committed to paying higher wages during a maternity leave, it is more likely that employer highly values female employees and is conscious of pay equality in normal wages. I expect that an increase in \text{GDP\_GROW}, \text{ pubkey\$}, \text{OECD}, and \text{YearsPL} will all be negatively associated with the gender wage gap, simply because as development indicators improve, it can be expected that inequalities like the gender
wage gap will decrease. Each additional year since a country first introduced parental leave legislation in particular should be associated with a decrease in the gender wage gap, simply because that country should have gotten ample time to legitimately implement equality policies. Lastly, I expect that there will not be a significant relationship between GWG and Y2010 and Y2011, simply because not enough time will have passed to effectively shrink or expand the gender wage gap.

There are potential difficulties in utilizing these data, however. First, there is potential for omitted variable bias given the limitations of the individual identifiers collected by the World Bank, UN, and ILO. Although several potentially significant indicators are provided, missing indicators that could cause bias might include income, marital status, and level of education, among others. Furthermore, the lack of appropriate proxies for these data limits the ability to substitute indicator variables for missing data. Overwhelming missing data from several key indicator variables that detail the level of generosity in social expenditures in a country and identify companies with more than 75 female employees could be detrimental to the overall regression results. Upon examination of the data, many countries were also missing key data points for my key dependent variables, which also have the potential to hinder results. The unavailability of these data very likely contributed to the suspicious results in many of this study’s regressions.

I next describe the results from these regressions.
VII. Results

Three empirical models were tested in order to obtain the information included in this results section. With two models with slightly different control variables, I attempted to test the effects of the length of maternity leave and the percent of wages (my key independent variables) during that time period on the percent total of female legislators, senior officials, and managers. With a third model, I attempted to test the effect of the percent total of female leaders (along with the other key independent variables previously discussed) on the gender wage gap. Again, these models were tested while controlling for years passed since parental leave legislation was first introduced, for OECD countries, and control for the gender wage gap. Significant results for these independent variables of interest are illustrated in Tables 5, 6, and 9. A linktest analysis was also performed between the first two models, and results are reflected in Tables 7 and 8.
Table 5: Effects on Percent of Total Female Legislators, Senior Officials, Managers

<table>
<thead>
<tr>
<th>Regression On:</th>
<th>days_matleave</th>
<th>wages_percent</th>
<th>Bp_empl</th>
<th>GDPgrow</th>
<th>femparl%</th>
<th>pubhealth$</th>
</tr>
</thead>
<tbody>
<tr>
<td>FemLeader(1)</td>
<td>-0.03</td>
<td>0.11+</td>
<td>3.41</td>
<td>0.048</td>
<td>0.082</td>
<td>0.447</td>
</tr>
<tr>
<td>Obs: 114</td>
<td>(0.0.06)</td>
<td>(0.041)</td>
<td>(1.782)</td>
<td>(0.213)</td>
<td>(0.066)</td>
<td>(2.292)</td>
</tr>
<tr>
<td>$R^2 = 0.325$</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>FemLeader(2)</td>
<td>-0.029</td>
<td>0.36</td>
<td>15.389</td>
<td>0.844</td>
<td>0.055</td>
<td>-0.363</td>
</tr>
<tr>
<td>Obs: 21</td>
<td>(0.0.019)</td>
<td>(0.31)</td>
<td>(14.645)</td>
<td>(1.021)</td>
<td>(0.389)</td>
<td>(7.171)</td>
</tr>
<tr>
<td>$R^2 = 0.835$</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Estimates listed with robust standard errors in parentheses. * indicates 90% confidence, ^ indicates 95% confidence, and + represents 99% confidence.
I note the limited overall number of observations in the more successful first regression of Table 5, which no doubt has contributed to inconsistent and surprising results. A smaller number of observations has the potential to negatively affect the statistical power of a model (the ability of the model to correctly assess and either accept or reject the null and alternative hypotheses). Observations determine the amount of sampling error inherent in a test result, and effects are harder to detect with a small number of observations. In this case, 114 observations is not extremely low, but it is smaller than I would have liked for the purpose of a thorough statistical analysis, and this may have hindered the model’s ability to produce statistically significant results and to spot potential errors. The second regression in Table 5 has an extremely low number of observations which prevented the model from being statistically significant at all, largely because of the inclusion of the femlitrate and mktcaprate control variables (the data for these two variables was sparse at best in my data set). It is worth noting, however, that the first regression had a fairly impressive $R^2$ (the percent of variation of the dependent variable explained by the model is 32.5, which is in a very acceptable range) given the limited number of observations. Any additional control variables may increase an $R^2$, but may also not be particularly relevant to the regression, raising the perennial question of the relevance of the $R^2$. However, my first regression in Table 5 has an impressive $R^2$ despite its limitations. Also, the F-test for this model is statistically significant [$F(10, 103) = 5.79; \text{Prob} > F = 0.0000$], which means the model and its variables are jointly statistically significant.

The findings in Table 5 demonstrate several unexpected effects. First, and perhaps most importantly, the first regression in Table 5 illustrates that each additional day of maternity leave
provided is associated with a two percent decrease in female leaders (but the results are not statistically significant at some conventional levels, due to limitations I discuss later in this paper). Although the magnitude of this relationship is quite small, this result was quite surprising, given that the hypothesis stated that women would be able to return to work and succeed in their respective professions if they were afforded a lengthy amount of leave. However, as hypothesized, it appears from the limited number of significant results that each additional percent increase in wages paid during a maternity leave is associated with an almost 12 percent increase of total female legislators, senior officials, and managers (an impressive magnitude), and the result is highly statistically significant at conventional levels. Therefore, while the length of a maternity leave time period does not seem to yield more women in leadership positions, it is fairly encouraging to see that higher percentage of wages paid during such time periods could possibly play an important role in bringing women back to work to further their careers.

It is unclear why these results differ; however, there may be a few considerations that account for these effects. In earlier sections of this paper, it was discussed that in some cases, women that were offered longer periods of maternity leave were actually dis-incentivized to return to the workforce altogether; perhaps the motivation for returning to work (and thus advancing careers) lies more with the promise of paid wages during a shorter maternity leave, rather than a longer maternity leave that is low-paid or unpaid altogether. Additionally, it could be the case that female leaders are not as affected by maternity leave length (or wages paid, for that matter), since it is likely that female leaders are older than the average woman taking maternity leave. Maternity leave length could also possibly not be associated with the likelihood
of a female advancing in her career – it may only influence a return to work. Essentially, these two separate elements of maternity leave policy may be working against one another; an employer may honestly be trying to lure women back to employment with higher wages, but either consciously or subconsciously discriminates against women when they take longer leaves. This finding will be discussed in further detail in the next section as a possible policy recommendation in the U.S.

Several other results in the first regression are worth noting in Table 5. A private employer paying the wages during a maternity leave period is associated with an increase in the percent total of female leadership by almost three and a half percent (although this result was not statistically significant at conventional levels). Each additional percent of GDP growth as annual percentage is associated with a four percent increase in female leadership (again, not statistically significant at conventional levels), and each additional percent of expenditure of public health is associated with a 44 percent increase in female leadership. This result was statistically significant at the 95 percent confidence level, and it is not surprising. Parental leave policies are an extremely important aspect of public health expenditures, and it is likely that the more a nation spends on public health, the stronger its parental leave policy, which in turn influences the level of female leadership. Each additional percent of females in national parliaments was associated with roughly an eight percent increase in total female leadership, again not surprising (but the results were not statistically significant at conventional levels). Finally, the dummy time variables were found not to be statistically significant, something I expected when introducing my empirical model. Not enough time has passed since 2009 for a significant increase in female leadership.
Each additional year that passes since a nation first introduced some form of parental leave legislation is associated with an almost 26 percent decrease in total female legislators, senior officials, or managers, and the result is extremely statistically significant. This is a surprising result, given that the original hypothesis suggested that the more time a country has had to implement parental leave policies, the more likely it would be that women would be equal participants in the workforce. There is a possible explanation for this phenomenon: perhaps the YEARSPL variable, while well intentioned, was not a good indicator of implementation of parental leave policies. It is entirely possible that although a piece of legislation has been in existence for many years, it may not ever have been successfully implemented. Several countries in this study with less than desirable civil rights and employment equality records have had parental leave policies in their legislation for decades (for example, Cuba has had a parental leave policy for 37 years but was ranked one of the world’s worst and most repressive societies for civil liberties in 2012; Libya was also ranked one of the world’s most repressive societies for civil liberties in 2012, and they have had a parental leave policy for 30 years), but it is possible that the policy and many others may never had been comprehensively and legitimately implemented at least in some of the sample observations [Dunham (2012)]. It is also worth noting that the OECD variable was included in this model, simply because OECD countries provided most of the data for YEARSPL and GWG (used in a later model). OECD countries, while a smaller group, provide a diverse sampling of nations with a common interest. It was found that OECD countries were associated with an increase in the total percent of female leaders (an increase of 1.44), and the results were statistically significant at conventional levels.

Finally, I acknowledge that the second regression in Table 5 becomes entirely statistically
insignificant when the female adult literacy rate and the market capitalization of listed companies as a percentage of GDP are added to the model. This is because the number of observations dropped to an insufficient number in order to run a successful regression. The model is included in this results section merely to show that other demographic variables were introduced into the model, but the limitations of the missing data made it difficult to run a model with the desired demographic variables.
Table 6: Effects on Total Female Legislators, Senior Officials, Managers with GWG

Estimates listed with robust standard errors in parentheses. * indicates 90% confidence, ^ indicates 95% confidence, and + represents 99% confidence.

<table>
<thead>
<tr>
<th>Regression On:</th>
<th>days_matleave</th>
<th>wages_percent</th>
<th>Bp_empl</th>
<th>GDPgrow</th>
<th>femparl%</th>
<th>pubhealth$</th>
<th>y2010</th>
<th>y2011</th>
<th>YearsPL</th>
<th>oecd</th>
<th>GWG</th>
<th>constant</th>
</tr>
</thead>
<tbody>
<tr>
<td>FemLeader</td>
<td>0.012*</td>
<td>0.087*</td>
<td>-4.1*</td>
<td>0.056</td>
<td>-0.028</td>
<td>0.226</td>
<td>0.21</td>
<td>-2.188</td>
<td>1.606*</td>
<td>-1.622</td>
<td>0.06</td>
<td>23.454+</td>
</tr>
<tr>
<td>Obs: 32</td>
<td>(0.004)</td>
<td>(0.046)</td>
<td>(2.377)</td>
<td>(0.289)</td>
<td>(0.036)</td>
<td>(0.248)</td>
<td>(1.968)</td>
<td>(2.151)</td>
<td>(2.865)</td>
<td>(2.753)</td>
<td>(0.082)</td>
<td>(4.762)</td>
</tr>
<tr>
<td>R² = 0.556</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
In order to preserve the significance of the observations that are valuable to my research, I dropped femlitrate and mktcaprate from my model, and included GWG. I acknowledge that the regression in Table 6 also has an extremely low number of observations (32), a drawback that was unfortunately unavoidable due to the limited data available for the gender wage gap variable. I note also the limited overall number of observations in the more successful first regression of Table 5, which no doubt has contributed to the inconsistent and surprising results. It is worth noting, however, that the second regression had an even more impressive R² (the percent variation of errors explained by the model is 55.6) than the first regression, given the limited number of observations. This is likely explained by the fact that the model controlled for the gender wage gap, which clearly appears to be a relevant variable. I acknowledge that models with low numbers of observations are often not seen as significant, and note the restrictions in analyzing this model. However, the F-test for this model is statistically significant \[F(11, 20) = 13.12; \text{Prob} > F = 0.0000\], which means the model and its variables are jointly statistically significant.

The findings in Table 6 are also surprising even though the variables are extremely similar to the ones in the regression given in Table 5. The variable GWG was the only modification made to the model, and it dramatically changed the results. With GWG in the regression, each additional day of maternity leave is associated with a slight increase (roughly one percent) in female leadership, controlling for the other variables in the model, and the results are statistically significant at conventional levels. Similarly, when controlling for the other variables in the model, each additional percent increase in wages paid during maternity leave is
associated with an almost nine percent increase in female leadership (an impressive magnitude), and the results are also statistically significant at conventional levels. It seems quite clear that the addition of the gender wage gap variable into the model had a considerable impact on the regression, and helps support my original hypothesis. When controlling for the gender wage gap, the length of time given for maternity leave and the percentage of wages paid during that time seem to have significant impacts on the percent of female leaders, supporting the original hypothesis. Also of note is that each additional percent increase in the gender wage gap is associated with a six percent increase in female leadership. This result is puzzling, but is not statistically significant at conventional levels. Perhaps the gender wage gap is a contributing factor to increasing female leadership because the gap widens as women achieve higher professional levels. Also, it may be imprecisely measured across countries, leading to an imprecise (insignificant) coefficient.

Although encouraging, these results differ significantly from the results in Table 5, which in its own right is surprising. The gender wage gap seems to be the explaining factor between the two regressions, yet it remains somewhat of a mystery why the gender wage gap is so critical to the model. Is it possible that the gender wage gap is prohibiting women from become leaders in their professional careers just as much, if not more so, than the lack of an adequate maternity leave policy? Does the gender wage gap explain all of the imbalances in the professional workforce? This study is not nearly exhaustive enough to answer these questions, but perhaps ongoing and future research can attempt to tackle this important phenomenon. For the purposes of this study, however, the gender wage gap was critical to supporting the original hypothesis that maternity leave length and percentage of wages paid were important factors associated with
the level of female leaders.

Several other results are worth noting in Table 6. Each additional year that passes since a nation first introduced some form of parental leave legislation is now associated with an increase (1.61) in the percent of total female legislators, senior officials, or managers, and the result is statistically significant. This is a surprising result given the first regression, and is encouraging because the original hypothesis suggested that the more time a country has had to implement parental leave policies, the more likely it would be that women would be equal participants in the workforce. There is a possible explanation for the change: perhaps the YEARSPL variable, while well intentioned, was generally not a good indicator of implementation of parental leave policies. Another variable of interest in these results again is bp_empl. If wages paid during maternity leave came from a private employer in any given country, the percent total of female leaders is much lower (-4.1). The result is statistically significant at conventional levels in this regression. This effect raises the case for government-funded parental leave, a policy recommendation that I will discuss in the next section. The results are again statistically significant at conventional levels. Both GDPgrow and pubhealth$ were positively associated with female leadership (roughly six and 22 percent, respectively), but neither result is statistically significant at conventional levels. Each additional percent of females in national parliaments is actually associated with an almost three percent decrease in female leadership, but the result is also not statistically significant at conventional levels. It is also worth noting that the OECD variable was included in this model as well, simply because OECD countries provided most of the data for YEARSPL and GWG (used in a later model). OECD countries, while a smaller group, provide a diverse sampling of nations with a common interest. I found that OECD
countries were associated with a decrease in the total percent of female leaders (a decrease of 1.62), and the results were statistically significant at conventional levels. Finally, the dummy time variables were again found not to be statistically significant, something I expected when discussing my empirical model. Not enough time has passed since 2009 for a significant increase in female leadership.

Since GWG is essentially an omitted variable from the first regression in Table 5, I performed a linktest for each regression in order to detect a possible specification error. If each of my models is properly specified, there should be no additional predictors that are statistically significant except by random chance. The results of each linktest are below:

**Table 7: Effects on Percent of Total Female Leaders Linktest**

<table>
<thead>
<tr>
<th>Linktest On:</th>
<th>hat</th>
<th>hatsq</th>
<th>cons</th>
</tr>
</thead>
<tbody>
<tr>
<td>FemLeader</td>
<td>4.881^+</td>
<td>-0.065^</td>
<td>-56.74^</td>
</tr>
<tr>
<td></td>
<td>(1.577)</td>
<td>(0.026)</td>
<td>(23.344)</td>
</tr>
</tbody>
</table>

Estimates listed with robust standard errors in parentheses. *indicates 90% confidence, ^indicates 95% confidence, and + represents 99% confidence.

**Table 8: Effects on Percent of Female Leaders with GWG Linktest**

<table>
<thead>
<tr>
<th>Linktest On:</th>
<th>hat</th>
<th>hatsq</th>
<th>cons</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fem Leader</td>
<td>3.044</td>
<td>-0.034</td>
<td>-30.296</td>
</tr>
<tr>
<td></td>
<td>(2.758)</td>
<td>(0.046)</td>
<td>(41.136)</td>
</tr>
</tbody>
</table>

Estimates listed with robust standard errors in parentheses. *indicates 90% confidence, ^indicates 95% confidence, and + represents 99% confidence.

The variable _hat is the predicted value from the model, and should be a statistically significant predictor for a valid regression. If this is not the case, the model is not specified correctly. On the other hand, if the model is appropriately specified, variable _hatsq should not have much predictive power except for random chance. Therefore, if _hatsq is significant, then
the linktest is significant. This usually means that there are either omitted relevant variables from the models or the link function is not correctly specified. I first note that in the output from the regression in Table 7 that the key predictors (days_matleave and wages_pct) are statistically significant predictors, and in the linktest that followed, the variable _hatsq is significant (with a p-value of 0.002). This confirms that the model has meaningful predictors. On the other hand, it tells us that we have a specification error (since the linktest is significant), and perhaps GWG is an omitted variable. In the output from the regression in Table 8, we see that the key predictors are statistically significant, and in the linktest that followed, the variable _hatsq is not significant at conventional levels (with a p-value of 0.464). Since the linktest is not significant, there is likely no specification error, further suggesting that GWG was an omitted relevant variable from the first regression in Table 5.

Table 9: Effects on the Gender Wage Gap
Estimates listed with robust standard errors in parentheses. * indicates 90% confidence, ^ indicates 95% confidence, and + represents 99% confidence.

I acknowledge yet again that the regression in Table 9 has an extremely low number of confidence, and + represents 99% confidence.

<table>
<thead>
<tr>
<th>Regression On:</th>
<th>days_mateave</th>
<th>wages_percent</th>
<th>Rp_emplo</th>
<th>GDPgrow</th>
<th>femleader</th>
<th>pubhealthS</th>
<th>y2010</th>
<th>y2011</th>
<th>YearsPl</th>
<th>need</th>
<th>constant</th>
</tr>
</thead>
<tbody>
<tr>
<td>GWG</td>
<td>-0.026</td>
<td>-0.332*</td>
<td>18.762*</td>
<td>1.973+</td>
<td>0.528</td>
<td>0.191</td>
<td>-16.046+</td>
<td>-10.732</td>
<td>0.344+</td>
<td>25.631+</td>
<td>8.102</td>
</tr>
<tr>
<td>Obs: 32</td>
<td>(0.018)</td>
<td>(0.134)</td>
<td>(7.233)</td>
<td>0.672</td>
<td>(0.814)</td>
<td>(0.615)</td>
<td>(5.299)</td>
<td>(4.742)</td>
<td>(0.109)</td>
<td>(11.248)</td>
<td>(19.707)</td>
</tr>
<tr>
<td>R² = 0.618</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
observations (32), a drawback that was unfortunately unavoidable due to the limited data available for the gender wage gap variable. It is worth noting, however, that the regression had a reasonable $R^2$ (the percent variation of errors explained by the model is 61.6). I acknowledge that models with low numbers of observations are often not seen as significant, and notes the restrictions in analyzing this model. Also, the F-test for this model is statistically significant $[F(10, 21) = 9.12; \text{Prob > F} = 0.0000)$, which means the model and its variables are jointly statistically significant.

The findings in Table 9 were largely different from Tables 5 and 6, which is not surprising since the dependent and independent variables were switched. I ran the regression from Table 9 in order to examine the effects, if any, of length of maternity leave and wages paid during that time period on the gender wage gap itself, since it helped provide surprising results in Table 6. In this regression result, each additional day of maternity leave afforded was associated with roughly a three percent decrease in the gender wage gap (although the results were not statistically significant at conventional levels). Each additional percent of wages paid during any given maternity leave was associated with a 33 percent decrease in the gender wage gap as well (and the results were statistically significant at conventional levels). These results are not surprising, given GWG’s power in the earlier models, and it was encouraging to corroborate earlier results. Could offering paid maternity leave help to reduce the gender wage gap? This study is by no means exhaustive on this topic, but I encourage future research on this subject.

If wages paid during maternity leave came from a private employer in any given country, the percent total of female leaders is actually higher (18.63). The results are again statistically significant at conventional levels. Both GDPgrow and femleader were positively associated
with the gender wage gap (1.9 and 0.52 increases, respectively), but only GDPgrow’s result is statistically significant at conventional levels. Each additional percent of expenditure on public health is associated with an almost 19 percent increase in the gender wage gap, but the result is also not statistically significant at conventional levels.

In this last regression, the YEARSPL variable changes dramatically. Each additional year that has passed since a country first introduced some form of parental leave legislation is apparently associated with an increase in the gender wage gap (0.344), and the results are highly statistically significant. I believe this phenomenon is partly attributable to what was discussed earlier in the results section: perhaps YEARSPL is a misleading variable, imprecisely measuring societal progress toward equality, although initially tempting to include in the model. Years passed does not seem to guarantee any sort of positive movement in terms of the gender wage gap or the percent total of female legislators, senior officials, or managers in a given country. It was found that OECD countries were associated with an increase in the gender wage gap (an increase of 25.63 percent), and the results were statistically significant at conventional levels. Finally, the dummy time variables were again found not to be statistically significant, something I expected when discussing my empirical model. Not enough time has passed since 2009 for a significant increase or decrease in the gender wage gap.

**Limitations**

Given that data regarding some demographic variables and precise indicator variables were not available for inclusion in this study’s models, it is probable that these results will contain omitted variable bias. Omitted variable bias is present when a model is incorrectly specified by excluding independent variables which should be included in the model; in this
case, the level of education for women. As a result, the parameter estimates in the existing model will either be under or over estimated, as is demonstrated by the unexpected and inconsistent results for this study’s regressions. The results for the percent total of female legislators, senior officials, and managers might also result from inherent bias, which exists due to the extremely diverse nature of a cross-national analysis. It is nearly impossible to perform a study that attempts to standardize the parental leave policies of every country in the world, given the vast array of political, economic, and cultural systems at play. This discussion leads to a policy recommendation regarding better data collection and panel analysis that I discuss in the following section.

Next, I conclude and elaborate on the policy implications of these results.

VIII. DISCUSSION & POLICY IMPLICATIONS
"In all parts of the world, working women who become pregnant are faced with the threat of job loss, suspended earnings and increased health risks due to inadequate safeguards for their employment," says F. J. Dy-Hammar, Chief, ILO Conditions of Work Branch, who oversaw the report, “Maternity Protection at Work” [ILO (1998)]. It seems as though the United States is now the only industrialized country in the world that does not provide paid maternity leave, suggesting the excuse of international competitive pressures is no longer adequate to exclude women from the opportunities of careers that are equal to men.

I set out to study whether the presence of a paid parental leave policy increases female leadership in the workplace. Essentially, the purpose of my theoretical framework was to explore if countries forfeit productivity in their workforce by inadvertently preventing women from rising in the ranks of their respective careers by either not providing a parental leave policy or neglecting to provide paid parental leave adequate enough to keep women in the workforce. The literature supports the theoretical framework I have developed in a qualitative sense. I hoped the results of my empirical model would show an association between higher levels of female managers, executives and legislators and countries with longer, completely paid parental leave policies with guaranteed return to jobs. I hoped not only to be able to draw comparisons among countries with parental leave policies and those without, but also a comparison of the lengths and percentage of wages paid during parental leaves. I also hoped to explore the potential productivity lost if the lack of a parental leave policy is a disincentive for women to return to the workplace and prolong their professional careers. Although the results were mixed and surprising, I feel that this paper can still offer recommendations for maternity and parental leave policies in the United States, especially on the issue of a paid maternity leave policy.
The primary policy implication for the United States moving forward is that extending rights to job-protected and paid maternity leave should reduce the family gap for future working mothers by increasing the likelihood that they return to their employers after childbirth. There is also a risk, however, that extending maternity leave rights imposes costs on employers and these costs could be passed on to women in the form of lower wages or less employment. My results indicate in some instances that the length of maternity does negatively affect the total percent of female leaders in any given country, which could suggest that many women do not return to work after a lengthy maternity leave. My results regarding arguably the two most important aspects of a parental leave policy (length and percent of wages paid) imply that a government-funded wage replacement will have a considerable positive impact on female leadership, and that the length of time for a maternity leave should be of less importance. Each regression I ran (please see Tables 5, 6, and 8) showed a significant positive association between the percent of wages paid during a maternity leave and the percent of female leaders. In contrast, the association between each additional day of maternity leave provided and the percent of female leaders varied from a slight increase to a slight decrease in female leaders, suggesting the length of time’s overall impact on female leadership is either detrimental or negligible. It is possible that these two aspects of maternity leave are competing against each other: employers may be trying to lure back or keep women with higher wages, but there is inherent gender bias in the workforce that makes them discriminate against women taking longer leaves after giving birth. Wages paid during maternity have shown to be the key factor for the percent of female leadership in this study.
There is value added in an effective relationship between the parental leave policies of a country and its proportion of female executives even if the numbers do not show a dramatic increase. However, if I were to make a recommendation to raise paid parental leave to 100 percent of wages paid over longer periods in the United States, the cost in terms of resources could be high. My results in Table 6 show a considerably negative association between female leadership and whether a private employer pays wages during a maternity leave, as opposed to the government. These findings suggest that a government-funded wage replacement program might be an effective policy that helps increase the percent total of female leaders in the United States. From a private employer’s perspective, providing paid maternity leave implies a higher commitment to social insurance than many employers are used to complying with, and the added costs could have unintended negative consequences in terms of the initial hiring of women. However, employers could be incentivized to decrease employment opportunities or wages for female employees to offset the costs of providing these added benefits. Along this vein, I advocate specifically for government subsidies that help expand work reentry programs in the United States for female professionals. Many women across the country are trying to return to work after either a short maternity leave break or a longer one to raise their children, and are finding it increasingly difficult to find an avenue back to their careers, and to advance after such long absences. Companies like JPMorgan Goldman Sachs, and Morgan Stanley (before they were absorbed), as well as universities like Harvard Business School, and law firms like Baker Botts have all recently started programs to help motivated women return to jobs they left in finance and at law firms to care for children. Women today fill roughly half of the middle-management ranks in many companies today, but then the numbers drop to 10 or 15 percent at
the higher management levels [Preston (2014)]. Companies are beginning to realize that in order to get balanced leadership at the top, they need to retain qualified female managers and executives. One of the most important ways to do this is to offer these reentry programs to female employees that are considering a hiatus like maternity leave. Private firm reentry programs are just the beginning, but they are a positive beginning. In terms of policy recommendations, I advocate for work reentry programs for all women (no matter level of career attainment) under federal jurisdiction.

I make the recommendation for a government-funded wage replacement maternity leave program based on two conditions: the first is that my model did produce results showing a significant relationship between the presence of a paid paternal leave policy and the level of female success in the workplace – most closely measured by the proportion of female managers and executives. This condition was satisfied in my results. The second condition is that paid parental leave polices increase overall economic productivity and decrease the level of unemployment of a country to provide all employees with paid parental leave. This condition was also satisfied: an increase in wages paid during a maternity leave was associated with a significant increase in female leadership. I expected the results of my empirical model to show that the presence of a paid parental leave policy inadvertently fosters female participation and success in the workplace, and the final regressions certainly indicated as such, but with mixed results. After controlling for the gender wage gap, my results showed that both length and percentage of wages paid during maternity leave had a positive association with the percent total of female legislators, senior officials, and managers. However, it is important to remember my first result that indicated a negative association between the length of maternity leave and the
percent total of female leaders. Perhaps what policymakers should keep in mind is the following: wages paid during maternity leave seem to have a positive relationship with female success in the workplace most prominently. Perhaps when women’s jobs and wages are guaranteed during their maternity leave, they are more likely to return to the workforce.

For future research on this topic, I would absolutely recommend collection of better cross-country data on parental leave policies and their economic implications to support a more in-depth study, simply because I felt that the data (specifically on the gender wage gap and availability of data on parental leave legislation) were not sufficient to perform a complex, comprehensive examination of parental leave policies in this case. I would also recommend collection of further data on the relationship between the gender wage gap and the percent total of female leaders, as well as the relationship between the gender wage gap and the length of maternity leave and wages paid during that time period. Eventually, with years of data collection, a study of panel data would allow fixed effects analysis, which would eliminate some concerns about omitted variables. Unexpectedly, the driving variable in my study became the gender wage gap, and it is entirely possible that it is more harmful to society than from just an employment inequality standpoint. I specifically recommend a government-funded wage replacement maternity leave program based on my results. Lastly, I recommend further research on the efficacy of work reentry programs as an incentive for women to return to the workforce and attain higher career levels than previously possible, and possible government subsidies to help expand their influence.

IX. Bibliography


