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Leaking Pipelines: Doctoral Student Family Formation

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## Introduction

In August 2007, I was a plenary speaker at the 15<sup>th</sup> annual Ronald E. McNair Scholars Symposium held at UC Berkeley. The McNair Program prepares under-represented individuals to pursue PhDs by teaching research skills, and connecting students with faculty mentors in order to undertake original research projects. The symposium brought together some 200 undergraduate McNair scholars from across the country to present the research that we had been working on for nearly a year. As I stood at a podium in front of my fellow McNair Scholars in the large auditorium of Dwinelle Hall, I asked, “By a show of hands, how many of you intend to pursue a PhD after, or soon after, you complete your undergraduate careers?” All of the hands in that large room shot up to indicate that indeed they were going to pursue their PhD’s in the near future.

I then asked a second question: “And, by a show of hands again, how many of you think that you would like to someday have children?” Once more nearly all of the hands rose. I responded back: “Your overwhelming response is why this research is so important to me. I want you to be able to do both, have a PhD and be a parent, should you choose to!”

The primary concern that my research addresses is how family formation affects the lives and career paths of doctoral students, particularly female doctoral students. There is a lot of research on this subject at the faculty level, which is why I was left to wonder if the same, or similar, issues of family formation that exist at the faculty level also exist at the doctoral level. Hence, the first section of this paper describes background information on female faculty and their economic status in academia, with family formation as a contributing factor to women’s under-representation in the tenured ranks. This is done in order to provide context for my research on doctoral students.

The second section explores theories that analyze the low economic status of women in the professoriate. The third section discusses the methodology I used in my research, including its limitations and significance. The fourth section consists of my findings. In the last section, I conclude by offering recommendations for university sponsored policies, programs, and services for doctoral students with children and by making suggestions for future research to expand upon this topic.

## Background

Women in academia generally rank lower than men in status and income. Since the late 1970s, approximately only 47% of women on the full-time faculty have had tenure, compared to 70% of men. And, for example, at the full professor rank, women earn about 88% of their male counterparts’ salary.<sup>1</sup> Moreover, women’s employment in the academy is concentrated in

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1 American Association of University Professors (AAUP), “The Annual Report on the Economic Status of the Profession: Inequities Persist for Women and Non Tenure-Track Faculty.” March-April, 2004-05, <http://www.aaup.org/AAUP/comm/rep/Z/ecstatreport2004-05/2004-05report.htm>

contingent faculty positions such as adjunct or non tenure-track lecturers. Professors in these positions receive a lower wage, and do not have the benefit of tenure and consequent job security.<sup>2</sup>

According to the U.S. Department of Education, National Center for Education Statistics (NCES), in 2002-3, almost as many women received PhD's as men; 47.1% of recipients were women.<sup>3</sup> Women have come a long way since the 1960s, when they earned only 10% of the doctorates awarded nationally.<sup>4</sup> Though the gender gap between male and female doctoral recipients has narrowed, the gap between male and female tenured faculty has not. In fact, the present gender gap among tenured faculty resembles that of the 1970s.<sup>5</sup> Nationally, only 38% of the full-time faculty are women, and only 23% of them are full professors.<sup>6</sup>

However, as mentioned earlier, women are very well-represented in the lower ranks of academia where they are 58% of all instructors and 54% of all lecturers, and they hold 51% of all unranked positions.<sup>7</sup> Why is that? The literature reviewed for this paper attributes these disparities to the challenges of family formation: marriage or partnership, pregnancy, childbearing, adoption, and childrearing. Women who form families are the most likely to leak out of the "academic pipeline." The term "academic pipeline" refers to the successive stages of education from undergraduate school to full tenured professor. The term "leaks" refers to the various stages along that academic pipeline where individuals are most susceptible to dropping out.

In order to better understand where, and why, leaks were occurring for faculty Mason & Goulden (2004) did an analysis of data from the Survey of Doctoral Recipients (SDR)<sup>8</sup> using years 1979 to 1995. The analysis found that women who are married are 21% less likely than single women to enter a tenure-track position, and married women on the tenure-track have a 35% greater risk of becoming divorced than married tenure-track men.<sup>9</sup> In addition, women with children younger than six are 28% less likely to enter a tenure-track position than women without babies.<sup>10</sup> In contrast, married men are receiving a boost by family formation, whereby

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2 AAUP, 2004-05; Mason and Goulden, "Do Babies Matter: The Effect of Family Formation on the Lifelong Careers of Academic Men and Women." *Academe* 88(6) (2002) : 21-27; 2004; Perna, 2005).

8 U.S. Department of Education, National Center for Education Statistics. (2005). *Postsecondary Institutions in the United States: Fall 2003 and Degrees and Other Awards Conferred: 2002-03* (NCES 2005-154).

4 Mason, Mary Ann and Mason Ekman, Eve, *Mothers on the Fast Track: How a New Generation Can Balance Family and Careers*. (New York: Oxford University Press, 2007).

5 Mason, Mary Ann and Goulden Marc, "Marriage and Baby Blues: Redefining Gender Equity in the Academy." *The Annals of the American Academy* 596, (2004) : 86-: 21-27; Perna, Laura W, "The Relationship Between Family Responsibilities and Employment Status." *Journal of Higher Education* 72(5) (2001) : 584-611.

6 AAUP, 2004-05.

7 AAUP, 2004-05.

8 The SDR is a longitudinal data set conducted every 2 years by the National Science Foundation, which follows doctorate recipients from U.S. institutions until the age of 76.

9 Mason and Goulden, 2004.

10 Ibid.

married men with children younger than 6 are the most likely of all groups, which includes single men, to secure a tenure-track position.<sup>11</sup>

Goulden (2006) conducted a second analysis of the SDR using data from years 1973 to 1999 in order to see what the “mean time to events” were for both men and women, that is the average time men and women receive their Bachelor’s degrees to when they achieve tenure.<sup>12</sup> Goulden (2006) found that both men and women received their Bachelor’s degree at the average age of 23.<sup>13</sup> After entering graduate school, it took the average person 9.3 years to complete his or her PhD.<sup>14</sup> Therefore, if a woman were to enter graduate school right away, she would be around 32 years of age upon receiving her PhD.<sup>15</sup> As previously mentioned, having a baby before entering the tenure-track would decrease her chances of getting tenure. After receiving her PhD, the “average” woman would presumably enter the job market in which it would take an average of 1.8 years to secure a tenure-track position.<sup>16</sup> However, having a baby while on the tenure-track, again, decreases a woman’s chance of getting tenure. If that same woman waited until after receiving tenure to have a child, which according to Goulden’s analysis of the SDR takes 5.1 years on average,<sup>17</sup> she would be 39 years old before she could finally have a baby—an age of declining fertility.<sup>18</sup>

According to the 2005 US Census, a woman’s average age at first birth is 25.<sup>19</sup> However, 64% of women in post-secondary education do not have their first baby before the age of 30—if they have one at all.<sup>20</sup> Nonetheless, the time a woman spends in her doctoral program, when she is, on average, 23 to 32 years old, is a time of prime childbearing years. As of 2006, the percentage of doctoral students with dependent children in the United States<sup>21</sup> were as follows: 23% of male and 20% of female doctoral students have dependent children at universities classified by the Carnegie Institute as “research focused” (considered the most prestigious); 47% of male and 36% of female doctoral students have dependent children at universities classified as “teaching focused” (considered less prestigious).<sup>22</sup>

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11 Ibid.

12 Please see appendix item #1

13 Marc Goulden, 2006, unpublished data on mean-time-to events for men and women achieving tenure. Please see item #1 in appendix for graph.

14 Goulden, 2006.

15 Ibid.

16 Ibid.

17 Ibid.

18 Ibid.

19 Dye, J. L. (2005). *Fertility of American Women: June 2004. Current Population Reports* (No. P20-555). Washington, DC: U.S. Census Bureau. (Fertility).

20 Mason and Mason Ekman, 2007.

21 The percentage of doctoral students with dependent children included institutions from the “Carnegie Institution type”, which is a classification system that was developed in 1970 by the Carnegie Commission on Higher Education. It is the leading framework for describing institutional diversity in U.S. higher education, and is used as a way to represent control for institutional differences, and also in the design of research studies to ensure adequate representation of sampled institutions, students, or faculty. <http://www.carnegiefoundation.org/classification>.

22 (NCES, NPSAS:2004).

The research on family formation in academia centered mostly on faculty and not doctoral students. Thus, I was limited to using the literature on faculty as a guide for my interview protocol with doctoral students to see if the same issues of family formation existed for them. In addition, I also used secondary data on doctoral students from a web survey conducted at UC Berkeley by Mason and Goulden during the Spring of 2006 entitled “The Doctoral Student Career and Life Survey” (DCLS).

The DCLS achieved a 50% response rate (N=2,111) of second-year and higher doctoral students at UC Berkeley, and it assessed doctoral students’ attitudes toward future career and life issues, and their satisfaction with current degree programs, paying special attention to issues affecting doctoral student parents. The DCLS asked open-ended questions in addition to “yes” or “no” questions, which included fields for comments. Some of the responses are included in the findings and discussion section in order to supplement my interview data. The DCLS respondents’ basic demographics are as follows: 50% of respondents were women while women are 45% of UC Berkeley’s second year and higher doctoral student population. 13% percent of women and 10% of men have been parents as doctoral students at UC Berkeley. 32% of women and 29% of men are married; 18% of women and 11% of men are partnered; and 4% percent of women and 1% percent of men at UC Berkeley are divorced or have not remarried.

### ***The Economic Status of Women in Academia***

The statistics presented on the economic status of women in academia are limited to faculty. Hence, even though this paper is looking at the effects of family formation on doctoral students, the data on the effects of family formation on faculty is used as background, and a point of reference, for where women stand in academia. This was done in order to determine if women in academia’s economic status and progress are related to challenges surrounding family formation, and to make determinations on whether those challenges might start at the doctoral level.

To measure the progress women faculty have made in the ranks of the professoriate, the American Association of University Professors (AAUP) conducted their *Annual Report on the Economic Status of the Profession*. The 2004-2005 report, *Inequities Persist for Women and Non-Tenure-Track Faculty*, uses data from the U.S. Department of Education, National Center for Education Statistics and National Study of Postsecondary Faculty to outline the changes in gender equity among faculty longitudinally over eighteen years.<sup>23</sup> The AAUP has collected data on tenure status since the late 1970s and today the AAUP has found that men still outnumber women on the full-time faculty at doctoral universities by more than two to one.

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By contrast, women at colleges that only award associate degrees barely constitute the majority of full-time faculty. However, at all types of institutions<sup>24</sup> women are still 10% to 15% less likely than men to be in tenure-eligible positions. At doctoral universities, women are less than half as likely as men to be full-time professors. Even though salaries amongst men and women at associate degree colleges are now approaching equity, the salaries at doctoral universities still remain unequal, and the gap does not appear to be closing.<sup>25</sup> The AAUP, after examining the economic status of full-time faculty at different institution types and considering the long-term trends affecting higher education and faculty status, also concluded that, “the most significant trend for higher education faculty is the growing predominance of contingent positions”.

As previously mentioned, women mostly occupy contingent positions, such as adjunct lecturer or non tenure-track lecturer. According to the AAUP, since 1974, “there is strong evidence that a very common discrimination takes the form of appointing women faculty members predominantly to the lower ranks, and appointing few to the rank of full professor.<sup>26</sup> The AAUP statistics on the economic status of women in academia are disappointing for all institutions that seek male and female faculty equity. Even more disconcerting, the AAUP acknowledges that its findings are, in fact, an understatement of the inequities that exist between male and female faculty statuses. The figures by the AAUP are only for full-time faculty, and “women are disproportionately found in part-time positions” with “49% of all women faculty ... in part-time positions in fall 2001, compared with 41% of men”.<sup>27</sup>

Finkel, Olswang, and She (1994), foremost scholars on family formation and its effect on female faculty, discuss in their article: *Childbirth, tenure, and promotion for women faculty*, how women are disproportionately found in the lower ranks. The article states: “[an] important issue, downplayed as a major contributor to this persistent problem of women’s under-representation, has been the role of childbearing [or, family formation] in the lives of faculty women” (p. 259). Among the nation’s University faculty, women represent a smaller share of married (34%) than never married women (52%), and being married increases the odds of holding a part-time and non tenure-track position for women, but not for men.<sup>28</sup> This data implies that family formation is a prime suspect behind why women are under-represented in the tenured ranks, as well as in full-time faculty.

In *Do Babies Matter?* (2004), a nationally acclaimed research project funded by the Sloan Foundation, investigates the effects of family formation on the life and career path of male and female faculty. The *Do Babies Matter?* authors’, funded by the Sloan Foundation, authors

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24 All types of institutions means: doctoral, masters, bachelors and associate degree colleges.

25 AAUP, 2004-05, pp. 28-29.

26 AAUP, 2004-05, p. 21.

26 AAUP, 2004-05, p. 27.

27 AAUP, 2005, p.29.

28 Perna, Laura W, “The Relationship Between Family Responsibilities and Employment Status.” *Journal of Higher Education* 72(5) (2001) : 584-611.

M Mason and Goulden, used data from the Survey of Doctoral Recipients (SDR), to that which tested the effect children that children younger than six (what they refer to as *early babies*) in the household— what they refer to as *early babies*—have at the time of career formation<sup>29</sup>, that is, up to five years post-PhD,; as well as upon the academic career progression of male and female doctorate recipients. They found that men with early babies achieved tenure at a considerably higher rate, illustrating the previously mentioned boost that men receive by family formation. In fact, of men and women with early babies, men are 20% more likely to achieve tenure than their female counterparts.

In a further analysis of the SDR, Mason and Goulden (2004), found that women who had “late babies,”(five or more years after completing a doctorate degree), or who did not have children at all, had higher rates of tenure than women with early babies: 65% and 71 %, respectively. However, the rates of tenure for these women were still lower than the tenure rates of men with early babies. Not only do women with early babies not achieve tenure at the same rate as men with early babies, single men, and single women, but they also “make choices that may force them to leave the academy or put them into the second tier of faculty: the lecturers, adjuncts, and part-time faculty.”<sup>30</sup>

A review of the data on the economic status of female faculty in academia led to the findings that women are under-represented in the more successful and prestigious ranks of the professoriate—such as full-tenured-professorships at research focused doctoral universities—due to their concentration in the second-tier positions—part-time faculty and adjunct lecturer. The research suggests that a primary factor in this trend is that family formation affects women more adversely than it affects men. But the question remains: Why would family formation impede the careers of women while it advances the careers of men? Perhaps cultural expectations and traditions surrounding gender and its roles have created this situation.

## THEORY

### *Theoretical Explanations for Women’s Economic Status in Academia*

Blair-Loy (2003) argues that cultural schemas provide a framework from which society constructs an understanding of expected gender roles. Schemas in a society are built over time and become so inherent and pervasive that they are left unquestioned. For Blair-Loy, these schemas are the reasons why work and family conflict, and the schemas are one possible explanation for why family formation leads women to lower-ranked positions in the professoriate. Her theory is that there are “schemas of devotion,” deeply ingrained psychological, moral, and emotional maps, which assist in the delineation of thoughts and assumptions. These

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29 Mason and Goulden consider the time of career formation as up to five years post-PhD.

30 Mason and Goulden, 2002, p. 25.

thoughts and assumptions can “evoke intense moral and emotional commitments”.<sup>31</sup> Blair-Loy specifically focuses on two schemas of devotion: the family and work.

The work devotion schema is, according to Blair-Loy, traditionally a male cultural model and developed as a response to the forces of capitalism. This schema demands that substantial time and intense emotional commitment be given to careers and that historically:

As long as professionals were predominately male, with a wife caring for the family at home... the demands of the work devotion schema make it virtually impossible for those with significant care-giving responsibilities to reach peak positions in an organization.”<sup>32</sup>

The work devotion schema perhaps evolved as a consequence of what Coser and Coser (1974) describe as “greedy institutions with omnivorous demands for exclusive and undivided loyalty”.<sup>33</sup> In the leaking pipeline, the university is the greedy institution because it requires devotion and an intense amount of work. For tenure-track faculty at research universities, students must balance teaching classes, conducting their own research, and publishing their work. In the first few years of school, doctoral students must complete coursework, complete a Master’s thesis, pass qualifying exams, and teach class sections or serve as a research assistant. Simultaneously, they must write a dissertation. Unlike the work devotion schema, the family devotion schema is a cultural model that is traditionally female, which defines marriage and motherhood as a woman’s primary career. However, it should be noted that this schema is a middle-class, Caucasian person? schema, since women of color have long worked outside of the home due to economic necessity.<sup>34</sup> Nonetheless, the family devotion schema is supposed to “promise women meaning, creativity, intimacy, and financial stability in caring for a husband and precious children.”<sup>35</sup>

When a woman has to work outside of the home in order to contribute to her family’s income, or simply desires to do so, the result can be that she “evades or delegates family responsibilities, [and as such], she is violating the family devotion schema”.<sup>36</sup> Thus, even though gender schemas and roles are archaic, they persist and create conflict between work and family that burgeons in institutions of higher education. This may be a contributing reason to the challenges surrounding family formation for faculty and doctoral students and may be one reason the academic pipeline leaks.

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31 Blair-Loy, Mary. *Competing Devotions: Career and Family Among Women Executives*. (Cambridge, MA: Harvard University Press, 2003) 5.

32 Blair-Loy, 2003, p. 7.

33 Coser, Lewis, *Greedy Institutions: Patterns of Undivided Commitment*. (New York: Free Press, 1974) 4.

34 Hochschild, Arlie R. *The Second Shift*. (New York, New York: The Penguin Group, 1989).

35 Blair-Loy, 2003, p. 2.

36 Blair-Loy, 2003, p. 20.



In her book, *Why So Slow?*, Virginia Valian (1998) agrees that gender schemas attribute to women's slow advancement in academia. Valian writes that, "sex differences [and the roles attributed to them] play a central role in shaping men's and women's professional lives".<sup>37</sup> Thus, these gender schemas result in consistently over-rating men and under-rating women in the workplace. Whatever emphasizes a man's gender, for example, being a father and thus a breadwinner, gives him small advantages that add up over time, referred to as the "accumulation of advantage", and whatever emphasizes a woman's gender, for example, being a mother and thus a caregiver, results in a loss for her and produces what is referred to as the *glass ceiling*.<sup>38</sup> For women in academia, getting married and having children may activate what Williams (2004) refers to as "negative competence assumptions" and "attribution biases" whereby colleagues make certain assumptions about a woman's time being more devoted to her children, rather than to her work.

Hays (1996) provides an elaboration on how these schemas have created an ideology of intensive mothering. According to Hays, these models have created expectations that mothers should spend an intensive amount of time, energy, and money in raising their children. However, in a society where 63% of mothers with pre-school aged children (younger than 6) are working outside the home, it seems anachronistic that society expects women to have all of the responsibilities that come along with this intensive mothering.<sup>39</sup> Hays' refers to this expectation as the cultural contradictions of contemporary motherhood—the contradiction being that society still expects women to take up more of the childrearing responsibilities than men—even if they do work outside of the home.<sup>40</sup>

In the book, *The Second Shift*, Arlie Hochschild (1989) describes this contradiction of contemporary motherhood as a "second shift" where women are working two jobs—both outside and inside the home. The second shift poses challenges to women in the advancement of their academic careers, and in other fields as well because their productivity is hindered by the double impositions on their time. Williams (2005), refers to this phenomenon as the "maternal wall" in academia, which keeps women who are also mothers from desirable faculty positions. An example of the maternal wall in academia is precisely those women discussed previously who have children within five years of receiving their PhD. Those women are less likely to achieve tenure than men who have children at the same point in their careers.

In addition to the maternal wall Williams discusses, an "ideal worker norm" also causes consequences for women with family formation (1999). According to Williams, the ideal worker norm originated because of men's abilities to dedicate a substantial amount of time to their work. With women at home as the primary caregiver and men situated in the gender schema where they

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37 Valian, Virginia. *Why so Slow?* (Massachusetts and London, England: The MIT Press:1998) 2.

38 Valian, 1998.

39 Bureau of Labor Statistics (2004). *Employment Characteristics of Families in 2003*. Washington, DC: U.S. Department of Labor.

40 Hays, Sharon. *The Cultural Contradictions of Motherhood*. (New Haven and London: Yale University Press, 1996).

are the primary breadwinners, the ideal worker norm becomes associated with men because they can, and are expected to, devote more time to work. However, women who try to fit into this norm and serve as primary caregiver may find it difficult to balance both the demands of an ideal worker with an ideal caregiver.<sup>41</sup>

Drago et al. (2001), and Drago and Colbeck (2003), theorize that this ideal worker norm brings about “bias avoidance”, which contributes to the family formation conflict for women in academia. Bias avoidance is defined as faculty avoiding bias that may come with caregiving responsibilities. Thus, faculty may understate the encroachments that family responsibilities impose upon work responsibilities as a means to advance and achieve success in their academic careers. In addition, bias avoidance can mean that faculty and doctoral students, especially women, might decide to avoid family formation altogether, in order to achieve tenure or to pursue a tenure-track position.<sup>42</sup> However, for those who may not want to sacrifice family formation for their career, these worker norms explain why women are under-represented in the tenured-ranks of the professoriate:

The history and tradition of an academic life that is male and childless has continued to pose barriers for women as they seek to gain entry and advancement in the academy, [because] in the academic profession the “ideal worker” is one who, in essence, is married to his work leaving little time for bearing and raising children; [hence], the clock-work of the academic career is distinctly male...built upon men’s normative paths and assumes freedom from competing responsibilities, such as family, that generally affect women more than men.<sup>43</sup>

The consequences of gender schemas, ideal worker norms, the maternal wall, and bias avoidance can be seen in many ways. First, these biases and gender schemas that exist in academia contribute to creating academic environments, departmental climates, and cultures against family formation and caregiving.<sup>44</sup> As a result, this might be perpetuating behaviors in which the socialization of future faculty, for example doctoral students, are encouraged, or pushed, to engage in bias avoidance behavior, resulting in leaks in the academic pipeline.

“Academia is a greedy institution, one that seeks exclusive and undivided loyalty” wrote Wolf-Wendel and Ward. Upon that definition, parenthood could also be considered a greedy

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41 Williams, Joan, “The Glass Ceiling and the Maternal Wall in Academia.” *New Directions for Higher Education* 130 (2005) : 91-105.

42 Drago, Robert and Colbeck, Carol, “The Mapping Project: Exploring the U.S. Colleges and Universities for Faculty and Families,” 2003, Pennsylvania State University. Available online at: <http://lser.la.psu.edu/workfam/mappingproject.htm> (accessed June 15, 2006) ;Mason and Goulden, 2002.

43 Wolf-Wendel, Lisa E. and Ward, Kelly, “Academic Life and Motherhood: Variations by Institutional Type.” *Journal of Higher Education* 52 (2006) : 489.

44 Williams, Joan, “How the Tenure Track Discriminates Against Women.” *The Chronicle of Higher Education*, 44 (12) (2004); Drago and Colbeck 2003; Quinn, Kate A, *Graduate and professional student socialization regarding work and family in higher education*. Unpublished doctoral dissertation, University of Washington, (2006).

institution; children require a lot of time and attention.<sup>45</sup> Given that family responsibilities appear to fall more heavily on women due to the cultural and gender schemas, what happens when these two institutions compete? Do doctoral students, like faculty, experience the strain that family formation imposes upon a career as well?

## Methods

To answer my research question, I conducted interviews with thirteen doctoral students at UC Berkeley in February and March 2007. Due to the time constraint (I only had one semester to conduct interviews) I was unable to obtain a larger sample size. Hence, this study is limited by its small sample of participants, the fact that they are only from UC Berkeley, and that the study was conducted in such a short time, the Spring semester of 2007. Issues regarding the effects of family formation, especially those that occur over the career of male and female doctoral students, would be best analyzed longitudinally by gathering data over an extended period of time and by using a much larger sample. A large sample size would include equal numbers of subjects from several universities, both public and private, in order to make more accurate comparisons, correlations, and conclusions.

Participants for my study were recruited through the *snowball sampling* method, which relies on referrals from initial subjects to generate additional subjects. This method introduces bias because the method itself reduces the likelihood that the sample will represent a good cross-section of the population. This shortcoming appeared in my research, evidenced by the fact that all of my subjects came from Departments in the social and behavioral sciences: Social Welfare (4 participants), Sociology (3 participants), Ethnic Studies (3 participants), and Education (2 participants). Thus, my findings may not necessarily be applicable to women across the academic board, for example those in the biological or physical sciences. However, this method proved effective for recruiting my participants because student parents knew other student parents, and I was always able to obtain referrals.

While this study has many limitations, I believe that its significance is that it provides a basis for future exploration of the effects of family formation on the lives of doctoral students. Interviews provide an opportunity to find the many nuances involved with combining parenthood with the academy that can only be gleaned from personal testimonies. The challenge of balancing the demands of academia with the responsibilities of a family may be the primary reason for the attrition of female students from doctoral programs, the leak of women from the academic pipeline at the point of PhD to tenure-track job, and ultimately, it may be one of the most salient causes for the under-representation of women in the tenured ranks.<sup>46</sup>

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45 Wolf-Wendel & Ward, 2006, p. 490.

46 Mason and Goulden, 2004.

## *Participants*

My sample consisted of a total of thirteen doctoral students. Two of the participants, both female, later decided that they did not want their data to be used. Two other participants, one male and one female, fell into two distinct categories: the male participant was partnered and interested in marriage and having children, and the female participant was married and interested in having a baby. The remaining nine participants, of which four were male and five were female, were all married and had at least one child.

Due to the two doctoral students who did not yet have children but were interested in having them in the future, the focus of my analysis is on the male and female doctoral students who are parents, since they constitute the larger sample. As such, it was easier to observe emerging themes and issues that are unique to this population, as well as to compare and contrast them. In the future, a larger sample of those who do not yet have children should be a very valuable source of data because there may be certain reasons related to the academic environment that have influenced the fact they had not yet had children.

The combined age range of the male and female doctoral student parent participants' was from 22 to 37 ( $M=29.7$ ,  $SD= 4.63$ ); the age of the doctoral female participants who were also parents ranged from 27 to 37 ( $M= 32.4$ ,  $SD= 3.84$ ); and the age range of the male doctoral student parents was 22 to 30 ( $M= 29.7$ ,  $SD= 3.41$ ). The female participants entered graduate school at an older age, with a mean age of entry into their PhD programs being 29 (the minimum 25 and the maximum 32,  $SD= 3.08$ ), versus the male participants' mean age of entry at 26 (minimum 23 and the maximum 31,  $SD=3.82$ ).

Of the mothers, four were doctoral candidates who advanced in 2000, 2004, and 2005 and two were in the second and third years of their doctoral programs. Four of the women made "normative time," meaning they had progressed to their degree within the time period set by departmental standards, from the first enrollment as a graduate student at Berkeley until advancement to doctoral candidacy.<sup>47</sup> Of the fathers, one finished a doctoral program in 2006 in normative time; two were in the fourth year of their respective programs but were not making normative time; and one advanced to doctoral candidacy in 2001, also not having made normative time. It is interesting to note that in my sample, the men failed to make normative time more than the women. This surprised me, as I thought that women with children would be less likely to make normative time, but could be simply due to the fact that it was such a small sample. A larger sample of doctoral students with children would have been helpful in discovering if there are differences between men and women achieving normative time.

The median age of the youngest children of all of the participants at the time of the interviews was 19 months, with a range of three-months to six-years of age. Nine of the

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47 More details regarding "normative time", and the Graduate Dean's Normative Time Fellowship can be found at: <http://www.grad.berkeley.edu/policies/dntf.shtml>.

participants had only one child, while two had two and three children, respectively. One of the participants had adopted a child from the foster system in the second to last year of their doctoral program.

### ***Interview Protocol***

Due to the lack of literature on the effects of family formation at the doctoral level, I examined the literature on family formation at the faculty level by looking for themes that were most prevalent in most, or all, of the articles. Once those themes and categories were established, I created an interview protocol for the doctoral student participants. The protocol included general background questions about the student's department, academic progress, marital, and parental status. I asked doctoral students to talk about their experiences balancing academic and personal responsibilities and their perceptions regarding their department's and the university's climate for family-friendliness.

Of the doctoral student parents, I asked questions about their household responsibilities in order to see if there were any differences related to gender regarding how domestic activities were divided. I asked, for example, "How many hours would you estimate you spend on domestic activities such as childcare, housework etc., compared to your spouse or partner?" Furthermore, I asked parents how they managed childcare, such as the expense or difficulty of obtaining childcare, and if issues regarding childcare or children had ever posed any particular challenges to their academics.

I asked additional questions of the parent participants regarding dependent health coverage, housing, financial considerations as a student parent, and the kinds of policies, programs, and services they wished the university offered to help them to successfully combine parenting and studies. I asked further questions of the student parent participants about; how having a child has affected their future career plans,; if they would like to have more children, and if so, whether they would time the births of future children with their career aspirations and goals. Finally, I asked doctoral student parents what they thought they contributed to academia as a student parent compared to what students without children contributed to academia.

### **Findings and Discussion**

My findings suggest that at the doctoral level, graduate students are experiencing similar issues to those found among faculty in regards to family formation. For example, at the faculty level, female faculty have timed their births to follow an academic timeline. For example, they have their children in the month of May to coincide with the three-month summer break. Also, they time their births to post-tenure, when they no longer have to worry about being denied tenure.<sup>48</sup> Three out of the five female doctoral students with children stated that they timed their

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48 Armenti, Carmen "May Babies and Posttenure Babies: Maternal Decisions of Women Professors." *The Review of Higher Education* 27(2) (2004) : 211-231.; Wilson, Robin, "Timing is Everything: Academe's Annual Baby Boom." *Chronicle of Higher Education* (1999, June 25) : p. A14.

births to either the summer months or to the completion of coursework and qualifying exams. Three of the male doctoral students said that they did not time the births of their children. The fourth male doctoral student, who adopted a child, stated that he waited until after coursework and his advancement to candidacy to start the process of adopting his child. All five of the female students with children stated that they did not believe there was a best time to have a baby as a woman in academia. One female doctoral student illustrated the prominence of the timing issue saying:

It was kind of an excessive amount of planning in the lead up to getting pregnant and during the pregnancy. I actually put off trying to get pregnant for an entire year because I wanted to be a teacher's assistant for a yearlong course. I knew I wanted to do it so I made darn sure that I didn't get pregnant at all. I could get pregnant during it, but I wouldn't be giving birth during that time. So, I completely scheduled conception basically around work.

What factors exist to make women feel this kind pressure to time the birth of their children? Often, the climate and the perception of the academic environment, as well as the culture of an institution of higher education, is what socializes faculty and doctoral students to the definition of expected behavior. The female doctoral students I interviewed felt that, though it was not always explicitly stated, a pregnant woman doctoral student would not be taken as seriously as those who were not pregnant. As one female doctoral student put it, "Moms will second this: Once you choose to start juggling your graduate work with mothering, there are lots of faculty who put you in a whole different category. You can never be a superstar graduate student." Other female doctoral students, respondents in the DCLS survey, also felt that being a mother in the academy created conflict, and that the culture of academia is not supportive of women who want to be mothers as well as scholars. One woman stated, "Since beginning my doctoral work, I have become convinced that very few, if any, female professors are able to have stable, fulfilling family lives of the sort that I wish for—a stable marriage and children."

It appears that these women may be experiencing backlash from the ideal worker norm on why work and family conflict. It makes sense that the standards female faculty are held to are also applied at the doctoral level, since doctoral students are ostensibly being trained as future faculty. Thus, if a woman gets pregnant and has a child while going through her doctoral program, she is also activating negative competence assumptions and attribution biases discussed previously. Expectations of performance and preparation for future faculty jobs start at the faculty level. Thus, if a woman gets pregnant and has a child while still in her doctoral program, she begins activating negative competence assumptions and attribution biases early on. Advisors and faculty, according to the theories, would then begin to assume that that student's time is more devoted to children than her work. Meanwhile, advisors and faculty would be making certain assumptions about a woman's time being more devoted to her children, rather than to her work. Thus, it is a possibility that graduate students could be feeling pressure to engage in bias avoidance, just as much as faculty do. For example, a female doctoral student participant

discusses in her interview the great efforts she took to hide the fact that she was pregnant from her advisors and from her peers:

I got pregnant at the beginning of the fall semester and started to show pretty much around the spring semester. I didn't want anyone to know that I was pregnant because I didn't want my advisors or colleagues to think that I couldn't finish my work. I tried to avoid going to campus as much as possible, and when I did have to go to campus I wore really baggy clothes all of the time in the hopes that people would think that I was just getting fat and not that I was pregnant. This participant further articulated that she felt "cheated out of enjoying [her] pregnancy" because she was so worried about how she would be perceived and what academic and career consequences she might face because of her pregnancy.

Evidence of this stems from several of the interviews. The negative climate toward childrearing in academia is so strong that students from my sample admitted that they found it necessary to switch their academic goals in order to achieve their parenting ones. This was actually a salient issue for both male and female doctoral students. Some doctoral students' dissertations before having their child involved traveling to complete fieldwork. After having their child, some admitted they had to change the scope of their work, and a few said that they even had to change their topics altogether in order to stay close to home and be with their children.

This compromise is also illustrated in the survey. When doctoral students were asked what their career goals were at the start of their PhDs, 51% of men and 46% of women said they wanted to be a professor at a research university. However, when asked what their current career goals were, only 41% of men and 31% of women maintained that same goal. When these students were asked what their reasons were for switching their career interests away from research universities to teaching universities, 42% of women and only 16% of men responded that it was due to issues related to children; and 32% of women, and only 19% of men, said it was issues related to their spouse or partner.<sup>49</sup> A female doctoral student survey respondent sheds more light on the reason behind switching:

Academia is not very supportive of women. There are challenges at every step of the way in terms of having to make choices. I want to be able to have a family, have children and enjoy being a mother and a wife which are close to impossible when one chooses academia. The clock is ticking and it does not stop for anything or anyone. This comment implies that family formation issues do affect women more than men, another similarity between female faculty and doctoral students.

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49 Mason, Mary Ann and Goulden, Marc, Doctoral Career and Life Web Survey. Conducted during the Spring of 2006 at UC Berkeley.

Another issue regarding family formation that arose during the interviews was the presence of gender roles. For example, one participant's spouse was also a doctoral student. They were in the same program and seemed to be progressing at an approximately equal rate, but she was actually slightly more advanced than him. Once they had a child, her progress slowed down significantly, elongating her PhD timeline, while her husband's progress continued to speed ahead. One reason for this disparity could be the previously discussed cultural and gender schemas, suggesting the woman is handling more caregiving activities. Further complicating the situation, her husband had recently entered the job market. If he were to find employment before she finished her PhD, she would presumably follow him to his job's location, leaving the completion of her dissertation in question.

Financial considerations were a relevant family formation issue for doctoral student parents. Raising children is expensive and is a challenge on a student's salary. At UC Berkeley, the starting salary as of 2007 for a Graduate Student Instructor (or Teacher's Assistant) with fewer than four semesters of college teaching experience (Step 1) is \$7,805.25 per semester for a 50% appointment.<sup>50</sup> Doctoral student parents at UC Berkeley must contend with the high cost of living in the Bay Area (where student family housing rents range from \$1495 to \$1640 per month)<sup>51</sup>, combined with the high cost of childcare (UC Berkeley's childcare can cost up to \$1400 per month<sup>52</sup> for one child if a student does not receive subsidized help), and dependent health coverage costs (at UC Berkeley doctoral students are not provided with dependent health insurance).<sup>53</sup>

Finances are often an important factor in a doctoral student's ability to not only care for his or her children, but also to finish his or her dissertation. For example, if a doctoral student parent has to teach a class or assistant research to cover childcare costs and must also care for a young child, the doctoral student parent will undoubtedly face a time bind. Thus, a vicious cycle begins wherein the writing and completion of the dissertation is pushed aside and the PhD timeline is elongated, which can often lead to a student's delay in completing the program.

## Recommendations

The barriers to family formation that a female doctoral student faces could potentially deter many women from pursuing a tenure-track position. Additionally, the challenges associated with family formation may explain the leak in the academic pipeline that occurs before PhD conference. However, due to recent research on the effects of family formation in the life and career path of on faculty men and women, for example, *The Mapping Project*, by

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50 A 50% appointment is considered part time, and only working 20 hours per week. <http://ib.berkeley.edu/student/grad/fees/support.php>.

51 Cost of student family housing rents can be found at: <http://www.housing.berkeley.edu/livingatcal/studentsfamilies.html>.

52 Cost of childcare through UC Berkeley's Early Childhood Education Program can be found at: <http://www.housing.berkeley.edu/child/>.

53 <http://www.uhs.berkeley.edu/students/insurance/families.shtml>.



Drago and Colbeck (2003), there have been numerous institutions, including Stanford, UC Berkeley, and Harvard, that have begun implementing family-friendly policies, programs, and services at the faculty level in order to attract and retain their female faculty. I believe that these same policies could benefit graduate students as well.

From this analysis, it appears that both the faculty and doctoral level women are sometimes forced to choose between advancing their academic careers and having children. Family-friendly initiatives should be pulled down to the graduate level to attract, and increase the retention of, female doctoral students. In a review for family-friendliness that I conducted in 2006, only five out of 62 member institutions of the American Association of Universities had formal maternity leave policy in place for their students. As of the summer of 2007, that number has risen to ten. However, if all institutions had a formal maternity, or even better, a *parental* leave policy, in place, students would not be forced to take a leave of absence, which oftentimes has ramifications on student status, funding, and health insurance.

At UC Berkeley, former Dean Mary Ann Mason has instituted a funded doctoral student maternity leave policy, effective summer 2007. When discussing this new initiative at Berkeley with my interviewees, all eleven were excited about the policy. However, when asked if they would have used the policy when they had had their children or for future children and, if the policy would encourage them have children while still in their doctoral programs five of the female respondents (five student parents) were very uncertain if they would have used or will use the policy. For those who did not yet have children but wanted them in the future, one female doctoral student, who was married without children, responded was uncertain if she would have used it or not.

The hesitance to take advantage of the policy on the part of doctoral students illustrates the obstacles regarding the level of family-friendliness in academic climates. In a report done by Mason et. al. (2005) on family initiatives for tenure-track faculty, researchers found that the faculty had reservations on using family-friendly policies. The faculty members feared that using the policy might hurt their careers. Currently, these initiatives have a low usage rate. Among eligible men and women of the UC Faculty, the usage rates for four major family-friendly policies were low. Less than half of the eligible female assistant professors used Active-service-modified duties (ASMD), which grants faculty with substantial responsibility for the care of a newborn or a newly placed child under age five, relief from teaching duties for one semester or quarter.<sup>54</sup> Less than a third of UC faculty used the Tenure clock extension.<sup>55</sup> It appears from the interviews that doctoral students may have the same fears. Hence, it is important not only to create policies that encourage family-friendliness university environments, but to also encourage faculty and students to utilize them. More research will be needed in order to discover best practices for creating an environment that is family-friendly.

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54 Mason, Mary Ann and others, "University of California Faculty Family Friendly Edge: An Initiative for Tenure-Track Faculty at the University of California Report" (February 2005).

55 Mason et al., 2005.

Another policy that is beneficial to doctoral students who have children is the “normative time-clock-stop,” which extends academic milestones such as preliminary exams, qualifying exams, and normative time. Normative time is time set by departmental standards in which a doctoral student must complete academic milestones.<sup>56</sup> At UC Berkeley, a female doctoral student can stop her normative time clock in the semester of birth in order to avoid not making normative time because she had a baby. However, this benefit cannot be used once the semester of birth passes. That is, if a female doctoral student elects to not use this benefit during the semester she gives birth, she cannot save the benefit for a more appropriate time, such as when her child falls ill. Moreover, there is no normative time-clock-stop for male doctoral students who become parents. The male participants that I interviewed who did not make normative time stated that they did not make normative time as a consequence of the difficulties of combining their programs with their familial needs. These participants faced a lack of childcare, a need for time off for the birth of their child, and delayed progress. They endured these consequences as they took on more responsibility in caregiving to allow a spouse, who is also in a doctoral program, to get her work done. In fact, all five of the male participants (four of who were parents and one who was not yet a parent) that I interviewed felt that they, too, should have access to the normative time-clock-stop in pressing family-related issues.

UC Berkeley has some of the most comprehensive array of family-friendly programs and services for its faculty and doctoral students.<sup>57</sup> However, these programs need further development and need support for family-friendly initiatives. In general, all UC campuses still need improvement in the programs and services that are offered for example, UC Berkeley does not offer dependent health insurance coverage for its doctoral students. Perhaps one might not expect that UC Berkeley go out and immediately purchase a contract of health insurance for its doctoral students. However, services at the TANG center<sup>58</sup> that would navigate pregnant graduate students through the subsidized public health insurance, such as Medi-Cal and Healthy Families<sup>59</sup>, could increase retention and the university’s level of family friendliness.

In addition, UC Berkeley’s childcare program does not provide enough slots to meet the amount of childcare needed by UC Berkeley student parents, with long waiting lists and high fees for unsubsidized students. Finding childcare in the community can be very expensive, with costs averaging \$1216 per month in the Bay Area.<sup>60</sup> This process can require extensive legwork and time to find a suitable facility for the child. UC Berkeley’s Early Childhood Education Program (ECEP) has a new director who is working on some of these concerns; however,

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56 Information regarding the normative-time-clock-stop policies can be found at: [http://www.grad.berkeley.edu/policies/memo\\_doctoral\\_parent.shtml](http://www.grad.berkeley.edu/policies/memo_doctoral_parent.shtml).

57 The Berkelyan, 2006 [http://www.berkeley.edu/news/berkeleyan/2006/04/13\\_family.shtml](http://www.berkeley.edu/news/berkeleyan/2006/04/13_family.shtml).

58 UC Berkeley’s health center.

59 Healthy Families is low cost insurance for children and teens. It provides health, dental and vision coverage to children who do not have insurance and do not qualify for free Medi-Cal.

60 San Francisco Chronicle, 10/17/2007, available at: <http://www.sfgate.com/cgi-bin/article.cgi?file=/c/a/2007/10/17/MN0ISQFEP.DTL>

accepting outside subsidies from private donors, non-profits such as “Bananas”<sup>61</sup>, and social service’s “Childcare Links”<sup>62</sup>, could help some of these issues in that it would reduce the out-of-pocket costs of childcare for student parents. In addition, having an affiliation with childcare in the community would help increase the numbers who are served. At the least, the ECEP website could—without endorsing any one childcare—provide links to outside options in the community.

Family housing is another service offered and boosts the level of UC Berkeley’s family-friendliness for its students. Many doctoral students who are parents live, or have lived, in “The Village”<sup>63</sup> during their programs. Unfortunately, rents in The Village are high and have increased by five percent every year in July for the past eight-years.<sup>64</sup> That increase does not necessarily consider the amount of funding doctoral student parents receive, adding to their financial burdens. Moreover, in a recent report done by the Village Residents Association (VRA), The Village’s rents are now higher than the “fair market rent” established by U.S. Department of Housing and Urban Development.<sup>65</sup> The university should therefore find some way to reduce those rental costs so that families can afford to live in family housing and continue to enjoy the benefits of living amongst other students with families.

In conclusion, this research brings up more questions than answers regarding the effects of family formation on doctoral students. Through my research I found that the challenges experienced by faculty regarding family formation are similar issues experienced by doctoral students. Moreover, the research indicates that, at the faculty level, a possible cause for women’s under-representation in the higher ranks of academia are partly due to the challenges of family formation and the gender schemas involved in family and work. Women’s leak out of the pipeline may start at the doctoral level, since the time spent as a woman in graduate school is typically the time of prime childbearing years. Still, future research is needed to see if the leak in the academic pipeline for doctoral student women is in some way due to issues regarding family formation. It may be beneficial to research if this leak out of the pipeline at the doctoral level heavily contributes to the inequitable representation of women in tenured-ranks. Finally, more research is needed to discover how a university can create or increase an environment and culture that is family-friendly so as to retain more female doctoral students and faculty.

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61 Bananas is a non-profit childcare referral agency serving families in Northern Alameda County, California. Bananas also provides subsidized childcare for parents in need.

62 California’s welfare subsidized childcare voucher system.

63 UC Berkeley’s student family housing.

64 <http://www.housing.berkeley.edu/livingatcal/studentsfamilies.html>.

65 Please see appendix item #2.

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