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Abstract

Since their permitted entrance into the airline industry in 1974, women have remained a very small portion of the commercial aviator workforce. In fact, women are just seven percent of pilots worldwide and just over three percent of U.S. commercial aviators. However, despite this gender divide in a U.S. industry with a reputation for rewarding high-skill performance with high-wage compensation, nearly no literature exists on the topic of women in the aviation sector of the airline industry. In focusing on female captains that have successfully navigated the field, this thesis examines what structural and personal features enabled a sub set of female aviators to persist in a male-dominated industry. In order to undergo this examination, this research calls upon eight interviews with successful female aviators at the major commercial airliner level, pairing it with a literature review on airline deregulation and the feminization of work. This thesis finds that structurally and institutionally, the equitable airline standards applied to both men and women discourages the equal entrance of both genders. On a personal level, the broad themes of support structures, family decisions, financial decisions and opportunity played central roles in each woman's progress through the field. Further research might incorporate a larger group of women, a group of women at a range of stages in their careers, women who decided not to continue in their initial pursuit of aviation, or men who worked in the industry at the time that women were first admitted to commercial aviation.

Key Words

Female aviator, feminist geography, high-wage, high-skill, gender divide

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Before moving into the body of this research work, there are several notable participants, advisors and loved ones without whom this thesis would not have been possible.

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Additionally, Professors Elizabeth Havice and Elizabeth Olson of UNC's Geography department contributed extensively to this thesis. In times of stress and confusion, my two advisors helped me develop strategic processes for approaching this endeavor. In times of naivety, these two women asked the tough questions that helped me think more critically about my topic. For the countless moments where I found myself somewhere between confused and naively self-assured, Professors Havice and Olson helped me grow as a student, as a researcher, and as a person. These women were instrumental to this thesis, but more importantly, they were highly influential to my undergraduate experience as a whole.

Introduction

Over the past half century, American industry has adapted to a changing labor force and marketplace. World War II encouraged women to enter the workforce in the absence of men and helped society at large envision women in traditionally male-oriented labor capacities. In the decades to follow, industrialization in the urban north and the passage of the Civil Rights Act of 1964 created a more equal legal context African Americans to enter the workforce.

Over this time, previously women have become workforce strongholds; as of 2010, women accounted for 32.5% of physicians and surgeons and 33.4% of legal professionals as compared to 1970 when women represented 9.7% of doctors and 4.9% lawyers (Mitchell), illustrating that women are a growing proportion of workers in some sectors. However, despite sizable gender equality gains across numerous disciplines that have historically been male-dominated, women occupy only a negligible percentage of jobs as pilots in the American airline industry and the numbers remain stubbornly low. According to the Federal Aviation Administration, women constitute just 6,685 of the nearly 120,000 commercial-rated pilots. Put another way, female commercial-rated pilots in 2014 comprised only 5.55%. These values represent a decrease in female pilots over the past ten years, both in raw numbers as well as by percentage (FAA Civil Airmen).

These gender disparities catalyzed the curiosity that ultimately led to this thesis. In this academic work, to gain insight only to why women represent such a small and stagnant portion of female aviators, I explore the career trajectories of a group of female pilots that have

successfully navigated careers in aviation through a compilation of long-form interviews with eight unique and accomplished female pilots. Statistics compiled by the Federal Aviation Administration and provided by several major commercial airlines complement these interviews by offering quantitative data to underline the widespread nature of the interviewee's individual experiences.

I would be remiss to overlook my personal investment in this project. Both of my parents are pilots in the commercial airline industry, my mother a captain on the Boeing 757 and 767 with American Airlines and my father a captain on the DC10 and MD80, also with American Airlines. My mother was hired with Piedmont Airlines in 1984 as the company's twenty-first woman pilot, placing her within the ranks of female aviators among various other companies who forged the path for women in generations to come. Prior to working for Piedmont, she was employed with Pacific East Air, Kalitta Air and Astrocopters; in all three companies, she was the only female aviator. Inspired by parents, I have also become a female pilot. Following my freshman year of college, I paid for and earned my private pilot's license. This topic is important to me on a personal level, but moreover, this research should be important to the larger academic community concerned with gender, workplace, economics, business, geography, family, and public policy.

Much is understood about the financial components of the airline industry, the safety policies that regulate flight, the procedures that companies are mandated to follow, and the route coverage of different major airlines. However, little research has been done concerning the

gender disparities that plague the space behind the cockpit door and few are asking why so few young girls take interest in flight despite a growing emphasis on women in STEM fields like aviation. This thesis will begin to examine the nuances of women and the airline industry by asking the challenging questions that might bring us to a better understanding of gender discrepancies within a high-income and high-skill professional environment. These central organizing questions that have guided my thesis include:

What characteristics do these women share that make them prone to pursuing a career in a male-dominated field?

What structural features made their endeavors more or less attainable?

What challenges do these women face on a professional and personal level as a result of their career aspirations?

How do female aviators experience the challenges of labor differently and similarly to each other and to their male counterparts?

What might these interviews indicate are some of the reasons why there is a stagnation in the numbers of women entering the cockpit?

Airline History

The 2015 merger of American Airlines and US Airways marked the advent of the world's largest airliner in all of history. However, this merger came in the wake of long period of consolidation in airlines including US Airways' absorption of Piedmont in 1989, America West Airlines'

acquisition of US Airways in 2005, American Airlines' acquisition of Trans World Airlines in 2001, and Trans World Airlines' previous acquisition of Ozark in 1986.

This economic climate of mergers and acquisitions defines modern airline business dynamics and impacts how customers interact with air travel. Yet, this particular understanding of the airline industry as a bureaucratic, massive-scale operation is relatively recent, and emerged in large part out of the Airline Deregulation Act of 1978 (ADA). This act wrote:

No State or political subdivision thereof and no interstate agency or other political agency of two or more States shall enact or enforce any law, rule, regulation, standard, or other provision having the force and effect of law relating to rates, routes, or services of any air carrier having authority under title IV of this Act to provide interstate air transportation (ADA)

The government's role in airline oversight was dramatically reduced in the wake of this pivotal policy decision. The stated objective of the Act was to create a more competitive industry climate in order to promote better service and lower fares. However, this belief that deregulation would better-serve customers of the airline industry was predicated on two central but false conceptions of air travel. First, parties who promoted the ADA's passage believed, "antitrust law was a strong force in controlling concentration in markets through the application of Section 7 of the Clayton Act" (Elgar). Second was the misconception that, regarding new airline companies, "the threat of entry would be sufficient to constrain the ability of the airlines to exploit customers" (Levine).

Immediately following the passage of the ADA in 1978, smaller companies began to pop up throughout the aviation industry in increasing numbers. These “popups” had no track record but were able to compete on pricing and service, much as the ADA had hoped. However, as these companies aged, many were either bought out by the growing giants of the airline world or went out of business as a result of the skyrocketing costs associated with retiring pilots, aging machinery and extensive media campaigns. The latter 20th century witnessed the elastic nature of creation and consolidation. Now, thirty-seven years after the fact, there are even fewer major airliners in existence than there were during the era of government-regulated air travel. This in spite of a notably larger clientele base, the creation of an international market place and fare prices which have dropped by over 40% (Elger).

The New American Airline’s entrance into the market as the largest airliner the world has ever seen encapsulates how drastically the Clayton Act was unable to regulate airline consolidation. Furthermore, the failure of multiple regional airliners coupled with the lack of new entrants into the industry undercuts the supposition that small startups would force larger and older airliners to compete based on fares and service. For background information on the airline industry to compliment this and subsequent sections, please reference the appendix.

But why is this seismic shift—a shift built upon the back of the 1978 move toward deregulation— important to the entrance of women into the airline industry? As Lucy Young noted in her interview,

“deregulation kicked in in '82 and threw the whole industry into chaos...it looked like a lot of startups like Air Florida and Texas International, People Express and I am sure there are others. It basically allowed anybody to get a startup going.”

Many women were first hired by startup airliners whose advent was made possible by the ADA. Growing demand for employees from startup airlines in need of pilots post-1978 meant that women's employment applications were considered, given that the piloting of civilian flight routes had opened to women only four years prior in 1974. Prior to 1974, women were barred from piloting passenger planes at a commercial airliner level. Furthermore, while women were legally permitted to pilot passenger commercial aircrafts after 1974, federal control of flight paths, flight frequency, and types of aircraft flying certain routes drastically limited the number of available pilot positions for which women could even apply. Fortunately, the 1978 deregulation of the industry catalyzed the creation of numerous startup airliners all vying for different niches within the airline market. Subsequently, there was a need for increasing numbers of pilots, a necessity that allowed many women to get their foot in the door.

Literature Review

This literature review will tackle two central themes crucial to a better understanding of women in the airline industry. First, of the eight women with whom I spoke, six were hired in the era immediately following the Airline Deregulation Act of 1978. This deregulation of a major American industry is a component of a larger trend of regulation and deregulation in the United

States over the course of the 20th century. Additionally, it is the opening of the industry to women and the subsequent deregulation of the airlines that became so influential for women hoping to enter the industry. Because of its importance to the industry as a whole and to female aviators' careers more specifically, I will review literature that helps to draw out the significance of the change to my research question. I will also examine the feminization of labor with particular focus on the interplay between professional and personal lives. This second section will consider theoretical research within feminist geographies as well as statistical research of women entering and leaving the labor force as a result of family demands. This section will inform my framing of female pilots' experiences and the gender roles that inform their perspectives.

Deregulation

The deregulatory era in American history has played a pivotal role in the professional experiences of late baby-boomers in numerous industries. Among these industries is the airline sector which was deregulated in 1978 as a result of the Airline Deregulation Act, a piece of legislation that followed a wave of similar federal steps toward a more privatized economy. "The Ford Administration in the mid-1970s began deregulation by proposing to end federal control of airlines, trucking companies, natural gas producers, and, spaced over five years, crude-oil and petroleum products producers" (MacAvoy).

The first section of this literature review will target portions of existing literature on the deregulatory nature of the post-1970 U.S. economy, the motivations for privatization of

previously public entities, as well as the immediate implications and the long-term consequences of deregulation. This in turn will inform a better understanding of the airline industry and the experiences of female aviators who were hired during this turning point in American aviation.

During the late 19th century, President Woodrow Wilson expressed his staunch stance against limited government, arguing that, “the American founders’ argument for limited government were based on ‘paper pictures’ and ‘literary themes’” need page number (Wilson as cited in Logue pg xx); while his criticism of a deregulated economy was not widely and positively received by the business community at the time, his viewpoint eventually gained traction during the Great Depression when government oversight was painted as the only reasonably employable tool to control a dangerously fluctuating economy (Logue). This position in favor of regulatory government was a stance backed by John Maynard Keynes and put into practice by President Franklin Delano Roosevelt. This federally regulated economy persisted well into the latter half of the 20th century as WWII and growing international conflict mandated federally-controlled production and trade. However, during the late 70s and early 80s, calls for deregulation of the American economy by respected figures such as Milton Friedman and President Gerald Ford shepherded in a new era of American economic theory. As Logue points out, American deregulation was further entrenched by a pushback against the regulatory nature of Communism during the Cold War era. Free trade, privatization and deregulation were seen as the absolute opposites of eastern Communism.

Similarly, in his book *The United States and The Global Economy: From Bretton Woods to the current crisis*, Frederick Weaver takes a temporal approach to understanding the oscillatory nature of a regulated capitalist economy and the impacts these transitions between federal oversight and deregulation have on various measures of success.

As Weaver writes in his process of conveying America's economic history, during the early 20th century:

“business industrial and trade associations tried to eliminate destructive competition by creating orderly markets through the coordination of prices, production, and marketing, working around antitrust legislation. But the efforts failed because of the incentives to cheat and the inability to enforce agreements” need page #

This failure of big business to band together and provide the protection that federal regulation might have otherwise ensured came in the wake of business kingpins like petroleum tycoon John D. Rockefeller, steel giant Andrew Carnegie and railroad mogul Cornelius Vanderbilt. Big business during the 20s was perceived as not to be tampered with by the government but to be further promoted by the American people in the hopes that they might one day be able to experience and participate in it.

However, the Great Depression quickly dissolved those dreams. October 29th, 1929 marked the beginning of an economically disastrous era in American history, the likes of which were

arguably made worse by President Herbert Hoover and his small-government ideologies.

President Roosevelt's election and his subsequent immediate institution of numerous federal measures such as the Glass-Steagall Act, the National Labor Relations Act and the Social Security Act helped the American economy recover from its worst economic disaster in history. Weaver further notes that, "the Depression had undermined the hold of business ideology and increased the power of the federal government", a trend that persisted through the majority of the century.

Situated within his temporal explanations of economic transformation and globalization of the American economy, Weaver also explores subtopics such as the importance of regulatory government in the labor prospects of female and minority employees. He writes that, "In the three post-World War II decades, economic expansion...enabled record numbers of women to enter the peacetime wage labor force". However, he also notes that "the successes of the civil rights and women's movements, as uneven as they were, bred deep resentment among large segments of white men". Finally, Weaver glazes over a topic that many feminist geographers have engaged. He writes that, "A consistent aspect of this geographic decentralization of manufacturing production has been the use of women workers...women have less social and political power and thus are vulnerable to exploitation no matter what skills they have". We will explore this theme more thoroughly later in this literature review.

In the wide range of social impacts that deregulation yielded, it provided an opportunity for many women to enter the industry as skilled laborers with lucrative career prospects. Weaver

and Logue merely glossed over the impacts of deregulation on female labor. Furthermore, what little ink they did dedicate to the topic concentrated on low-wage and low-skill female labor and its importance for global economic growth. This gap in their research and understanding of privatization in the United States will, in part, be supplemented by an examination of feminist geography which has considered primarily low-skill and low-wage female labor over the past fifty years.

Feminization of Labor

Much of the existing geography literature concentrates on feminization of low-wage labor and its links to migration geographies. I add to this literature attention to high-skilled and high-wage female labor literature as a means of gaining insight into industries that more-closely resemble the airlines. Alongside this examination of high-wage labor, I consider how Title IX of the Education Amendment passed in 1972 during the era of American deregulation also aimed to influence women hoping to enter high-skilled and education-intensive industries.

As Weaver indicates, deregulation of American industries during the latter half of the 20th century both influenced and was informed by the availability of female labor and the increasing movement of women into the workplace. While women's labor was not a central theme of Weaver and Logue's work, several geographers have unpacked these topics.

Family and children tended to play instrumental roles in the professional lives of the female aviators with whom I spoke. Geographers have quantitatively analyzed the likelihood of a

woman remaining in the workforce after having a child, for example, analyzing different age groups of women from different European countries to determine the influential nature of the mother's age at the time of her child's birth, the mother's socioeconomic status and the number of children in the family (Vlasblom and Schippers). Findings have revealed key features of the tenuous relationship between women in the workplace and family demands. These include: the idea of the 'child penalty' on participation in the work place and the disproportionate affect of the penalty on low-educated women (ibid). While many higher-income women can afford to incur childcare costs, low-income women are more often placed in the vulnerable position of having to sacrifice their jobs and the subsequent income because the cost of childcare exceeds or impedes their professional salary.

Also noted by Vlasblom and Schippers, "the first child is 'delayed' more and more, resulting in an increased period of 'childlessness'" (378), a trend that researchers are observing around the world and more distinctly in developed countries. However, the authors of this article are careful in their assumption that this apparent trend for women to wait longer before having children. While there appear to be differences in labor market participation correlated with age, the researchers are careful to note that, "due to the fact that the data are cross-sectional, the age pattern reflects a generation effect, and probably not a 'true' age-effect" (382).

While Vlasblom and Schippers tackled several major features of women in the workplace, their analysis did not fully consider the variety of high-income women and the ways in which this variety can impact workplace-family dynamics. What happens when the woman is the primary

earner? Is she still significantly less likely to remain in the workforce upon the birth of her first child? Is the husband more likely to complete much of the unpaid family labor? What other types of sacrifices do women make upon the birth of a child that might adversely impact their career without actually removing them from the job market? This article, which appeared in the *European Journal of Population*, offers multiple entry points to baseline research into high-income female professionals and the demanding relationship between work and family. This thesis identifies female aviators as a key group for understanding the larger dynamics that influence and impact high-income women in the workplace.

Additionally, researcher Judith Taylor takes on Title IX in her feminist examination, “Who Manages Feminist-Inspired Reform? An In-Depth Look at Title IX Coordinators in the United States”. Much like my own methods, Taylor utilizes an interview technique in order to gain insight into the experiences and perceptions of women who worked as Title IX coordinators in a particular locality. Taylor’s concern is with the implementation of Title IX and the dedication that a particular urban school district showed to its gender equity program. She relies on the experiences of several Title IX coordinators in order to examine the implementation of educational and federal gender equity but also to critique the “broad and vague” nature of the amendment (359).

Common analysis of Title IX examines its impact on female and coed athletic programs, but Taylor indicates additional realms subject to Title IX reforms. These include, “admissions policies and practices, academic programs and activities, course offerings, athletics, counseling,

and employment” (359). The coordinators’ work targeted these areas within an educational framework.

Taylor frames her interviews with a critical lens, noting that only one of the six women with whom she spoke identified themselves as feminists, “illustrating a possible initial organization interest in hiring “team players” (Edelman et al. 1991)” (364). Furthermore, Taylor concludes that the women with whom she spoke did not wish to utilize their position as a Title IX coordinator in order to spur social change for young girls; this in turn indicates that, “U.S. affirmative action and civil rights officers in public organizations...[are] diverse in background and political commitments and not likely to be radical crusaders (Edelman 1992; Edelman et al. 1991)” (361). Essentially, the administrative position intended to catalyze more equitable gender relationships in schools was undercut by feeble hiring decisions and subsequent animosity toward the women who worked as Title IX coordinators.

Coordinator Helen Fong noted that at one point in her career, she conducted an administrative review upon request and found that men were fairly regularly favored over women for professional advancement. However, her attempts to raise this issue with her affirmative action officer were met with institutional roadblocks; “the superintendent dismissed her recommendations and forbade her further involvement because the problem fell outside her job responsibilities” (365). Another coordinator, Brenda Pastori, was quoted as saying prior to her post in the Title IX position, “I’m not a bra burner. I’m not a fighter like that. I won’t be nailed to the cross.” Interestingly, during her time with the school district as Title IX

coordinator, Pastori notes an interaction with a male administrator. “He said, ‘My wife and I have four children, and she has never worked a day in her life,’ to which Pastori responded, “She has four children and is married to you? She has worked every day of her life” (367). Finally, Karen Stevens entered her position as coordinator hoping to drive notable change but having to constantly contend with insufficient funds. About Title IX, Stevens said, “This legislation has been around for decades. It’s time to start going beyond the minimum, not just comply” (368).

Yet, while the FAA reaffirms in order number 1400.11 its mandate to abide by Title IX, which “prohibits discrimination on the basis of sex in any Federally-funded educational program or activity, including FAA-funded assistance to colleges and universities” (5), there remains an enormous gender divide in the cockpit.

Taylor’s journal article examines the administrative experience of Title IX but does not clearly denote the employment impacts of educational equality. Her research pertains to women’s experiences working within an educational administration framework, but she does not discuss the impacts that these positions as Title IX coordinators had on the experiences of children in the district. Her concern did not pertain to long-term impact on the beneficiaries of Title IX reforms but rather on the administrative perspective. Alternatively, my own research will examine female aviators as a key group of women who have benefited from Title IX reforms but who have not experienced the surge in participation that might otherwise accompany a Title IX

amendment with meatier legislative language, more adequate funding and appropriate prioritization.

There are two central perspectives from which many academics approach feminist geography (McDowell et al). On the one hand, feminist geography has historically considered the development of gender identity and gender relations as the product of systematic disadvantages. In turn, these systematic disadvantages framed as resulting from traditional conceptions of gender roles and the belief that women should occupy the family-sphere. This approach—that women are systematically disadvantaged because of traditional concepts of gender roles—has both informed my own research and also been perpetuated by my approach. This research endeavor asks why more women aren't entering the cockpit and what institutional barriers exist that might dissuade women from pursuing a career as a commercial aviator. Fitting into this larger debate within feminist geography (e.g. Bowlby et. al.) speak, the experiences of these female aviators are unique as a class of women within a high-skill industry but their experiences are also the product of socially constructed gender roles. Furthermore, studies “demonstrated the crucial significance of childcare constraints in bounding the extent of women's activities both spatially and temporally (Bowlby et. al. cited in McDowell 160). My own research complements this assertion by examining the ways in which these successful female aviators' personal lives influence their professional trajectories. Urban and social geographies in particular note this link between personal and professional experiences and emphasize this truth as pertaining to women's lives.

However, Bowlby et. al. didn't just discuss the systematic disadvantages women face because of gender roles; they also discussed Marxism's influence on feminist geography and particularly how Capitalism informs views of gender identities. Within this framework, analysis is focused on the entrance of women into the labor market and particularly into low-wage jobs at the expense of male employment. Within the context of my research, Marxist perspectives about capitalist gender dynamics adds a level of complexity to the perceived discrimination many women face in the cockpit. Bowlby et. al. note that there is a distinct relationship between gender and class oppression. Common discourse pertains to lower-class oppression; however, my research will compliment this ongoing debate by detailing the ways in which we see the subversive oppression of women within upper-middle class environments such as the airline industry, including "increased recognition by feminist geographer of the diversity and variety in women's experience of oppression" (Bowlby et. al. 169). Likewise, as we will explore, the experiences of women within aviation are diverse and their perceptions of their experiences even more varied.

References

- Bowlby, S., Lewis, J., McDowell, L., & Foord, J. (1989). *New models in geography: The political-economy perspective* (Vol. 2). London: Unwin Hyman.
- Edelman, L. B., S. Patterson, E. Chambliss, and H. S. Erlanger. 1991. Legal ambiguity and the politics of compliance: Affirmative action officers' dilemma. *Law and Policy* 13:73-97.

- Edelman, Lauren B. 1992. Legal ambiguity and symbolic structures: Organizational mediation of civil rights law. *American Journal of Sociology* 97:1531-76.
- Gustafsson, S. S., 1992. 'Separate taxation and married women's labor supply. A comparison of West Germany and Sweden', *Journal of Population Economics* 5: 61–85.
- Huerta, M. P. (2013). *Nondiscrimination in Federally-Assisted Programs at the Federal Aviation Administration (FAA)* (Vol. 1400.11) (United States, U.S Department of Transportation, Federal Aviation Administration).
- MacAvoy, P. W. (1995). *Deregulation and privatization in the United States* (Vol. 3). Edinburgh: Edinburgh University Press.
- [Alternative view of regulation → post-deregulation, things actually became more regulated and the airline industry grew weaker, not as lucrative]
- Sainsbury, D., 1999. Taxation, family responsibilities and employment, in D. Sainsbury (ed.) *Gender and Welfare State Regimes*. Oxford: Oxford University Press, pp. 185–209.
- Taylor, J. (2005). Who Manages Feminist-Inspired Reform? An In-Depth Look at Title IX Coordinators in the United States. *Gender & Society*, 19(3), 358-375.
- Vlasblom, J. D., De Gijsel, P. P. and Siegers, J. J., 2001. 'Taxes, female labour supply and household income: Differences between the Netherlands and the Federal Republic of Germany', *Applied Economics* 33: 735–744.
- Vlasblom, J. D., & Schippers, J. J. (2004). Increases in Female Labour Force Participation in Europe: Similarities and Differences. *European Journal of Population Revue Européenne De Démographie*, 20(4), 375-392.

Weaver, F. S. (2011). *The United States and the global economy: From Bretton Woods to the current crisis*. Lanham: Rowman & Littlefield.

Research Methodology

In addition to the literary underpinnings of this research project that aimed to better understand the significance of female aviators, I collected primary data data on unique experiences of eight accomplished women in this sector of commercial travel.

As was previously mentioned, familial connection to the airline industry played a crucial role in sparking my interest in this particular project. Once this thesis was undertaken, two female aviators with whom I am close—Margaret Bruce, my mother, and Denise Blankenship, my godmother—networked with various other women in the industry and whose stories as understood by Ms. Bruce and Ms. Blankenship would add to this thesis a level of depth and interest otherwise impossible to achieve. My interview subjects are all successful female aviators. All eight women were employed by major commercial airlines and six of the women were Captains. These women are the success stories and this in turn informs the purview of my research. Their largely successful careers inform their positive perspectives of the industry as a whole.

I received the contact information for twelve female aviators from Ms. Bruce and Ms. Blankenship in late August 2015 and began contacting those on the list. [did you get human

subjects clearance? If so, include here]When initially contacting the potential subjects, I was very upfront about the purview of my thesis, why they were being contacted in particular, and my desire to record these interviews. For the women who felt comfortable with the aforementioned components of my research, I sent an interview consent form that more thoroughly explained the purpose of the interviews as well as the various options offered to ensure a level of confidentiality for the interviewees. Ultimately, interview dates we set for eight of these women throughout the fall semester.

Prior to the set interviews, each woman thoroughly examined the consent sheet and we discussed their desires before they signed and returned their written confirmation of their understanding and agreement to participate. On the day of the interview, prior to beginning the recording process, I again reviewed the consent form, further explained the trajectory of my questions and their importance for the construction of my thesis, and then answered any questions the interviewees had regarding the interview and thesis process.

Interviews lasted anywhere from thirty-two minutes to one hour and four minutes. All eight women were asked a similar series of baseline questions. These inquiries included:

- Tell me about yourself within the preview of aviation.
- Did you find the path toward becoming a pilot challenging?
- Can you think of anyone who played an influential role in your professional achievements or qualifications?
- Was there anyone or any event that served as a speed bump in your endeavors?

- How did family, friendship, and your professional aspirations coincide?
- What kind of networks and comradery exist for female aviators? How do female pilots find one another?
- Do you see any major differences for female pilots entering the industry now versus those who entered aviation thirty plus years ago?

Distinct questions were posed to each of the eight women depending on their responses to the standard repertoire as well as their personal qualifications and experiences. Additionally, some questions were adapted or some topics were further explored depending on the unique nature of each interview.

Throughout this explanation of my research methodology, I have been careful to label my technique as interview-based. While many components of long form interviews resemble another common method, the oral history, the exploration of my interview subjects' experiences are not oral histories. Certainly, many of the women spoke to the influential nature of their childhood in their decision to pursue a career in aviation as well as their perspective of the industry from a near-retirement standpoint, common themes in oral histories. However, all eight women focused their responses on the topic of aviation rather than straying to other components of their lives. While the oral history is typically more comprehensive by nature, encompassing many more themes of a person's life and engaging either with multiple questions or with no decisive question at all, the interview hones in on one feature of interest present in a subject. The eight interview subjects were all asked about their

aviation experience as women. The purview of the examination was clear, the questions prompted from a particular perspective, and the responses were all relevant to the topic of inquiry. Perhaps one or two references on methods

Themes

This section focuses on data analysis. Data analysis of interviews revealed key themes and similar experiences present for many interviewees. Their stories are all unique and extraordinary, but many of their observations are notably similar. Additionally, it is important to note that in some themes, the eight interviewees noted drastically different experiences. From these varying experiences we can also draw conclusions. In what follows, I detail data grouped under a series of X themes that emerged from the interviews. Following these overviews, I offer a discussion of these themes in relation to my central research questions.

Interests in and Entrance into Aviation

Of the eight women with whom I spoke, six entered the airline industry roughly during the era immediately following the Airline Deregulation Act of 1978. For these six women, exposure to the industry in one form or another was crucial to their pursuit of a career as a female aviator. However, all eight women's stories are incredibly compelling and even more invigorating.

Marilyn Koon, a Captain with American Airlines, said, “when I was about seventeen or eighteen, my uncle—he was probably about fifty at the time—started taking flying lessons and I was totally intrigued...he would take me in and show me how to plot a cross country. We would sit for hours and talk about flying. So when he got his private, he took me up flying and I just thought that it was the coolest thing ever. So for my eighteenth or nineteenth birthday and I’m not real sure, but he gave me \$100 for flying lessons.” Marilyn went on to describe that she had no idea that women could pilot planes commercially but just enjoyed her time in the air. One of her friends in college encouraged her to apply to be a part of the Air National Guard and Marilyn reasoned, “if I join the Guard and I don’t get into pilot training, it will look good on a resume that I served my country. Also, the money I was going to make for a weekend drill—because one weekend a month you had to go to the guard unit and do whatever your job was—I would make enough money to make my car payment.” Fortunately for Marilyn and many other women across the country, the Air Force intended to open its doors to female aviators and in preparation for this first class of female Air Force pilots, “they wanted a group of women to go through before them, so they took eighteen women from the active Airforce, one from the Air National Guard, and one from the Airforce reserve, and I was selected from the Air National Guard to go to pilot training. I started pilot training in January of ‘77 and graduated in January ‘78.”

Similar to many of the older female aviators, Captain Dianna Applegate of US Airways was attracted to aviation at a young age. Dianna recalled that she and her grandmother would watch planes take off and land at a local airstrip, but that the real journey began for her when

earned her bachelor's degree and decided to take time off before returning to pursue her law degree: "I hit the magic age of twenty-one and graduated college. I was all set to go to law school. I'd been accepted and decided that I really didn't want another several years of intense academia and that I wanted to see the world...one of my mother's friends was a flight attendant with Piedmont Airlines which at that time had a small base in Knoxville TN, where we lived. So I applied, was immediately accepted, and a week later I was in class." Although Dianna's employment as a flight attendant was intended purely as a temporary opportunity to see the world and simultaneously gain an income, that decision change the course of her professional life: "in that time, I had an opportunity to fly an airplane and for the first time in my life, I found something that I was truly passionate about;" Dianna pursued a certifications and licenses in order to become a pilot while continuing to work as a flight attendant with Piedmont, eventually just switching within the same company from a job in the cabin to a job in the cockpit.

Captain Margaret Bruce of American Airlines noted about her youth, "in high-school I wanted to learn to fly but I had always sort of thought that that was something that other people did, that, you know, you had to be an engineer or mathematician or some kind of brilliant person. And even though my mother had her private license...I didn't completely connect that it was something I could do." However, after earning her Bachelor's Degree, Margaret noted that her apartment neighbor had earned his Flight Instructor's Certificate: "I was his guinea pig student. So he said if I paid for the plane and the gas, he would teach me for free. So I was his very first student and he all of a sudden opened a door that had always been there...here I am taking

some flying lessons with Mike Morel in Oakland California at the end of 1979 and I don't think I had but 10 or 15 hours and I said, "this is what I am going to do," and I considered it a mere technicality that I didn't actually know how to fly."

As a very young child, Delta Captain Karen Ruth was exposed to the aviation world. "I grew up in a neighborhood that had Northwest pilots on the block. One that lived to the left and one that lived to the right and they were my mentors...they were both instructors and they brought me into the DC10 simulator when I was fifteen. After I had done that, I thought, "well this is what I want to be" ...I soloed when I was sixteen, I got my license when I was seventeen...I went on to the University of North Dakota and got the rest." Karen rocketed through her ratings, arguably because of her awareness and attraction to the industry at such a young age. Almost as proof of her accelerated track through the industry, Karen recalled, "I got a call from Republic Airlines which was my first major airline job and I was twenty-three years old...I have been senior my whole career because I started so young."

Alternatively, Captain Lucy Young of American Airlines came to commercial aviation by way of the Navy, a branch of the U.S. Armed Forces whose flight wing was not opened to women until the mid-70's. Lucy attended Purdue as a part of the Navy ROTC program and recalled, "I pretty much knew I wanted to go into the military, that the usual occupations for women just didn't excite me. You know, teaching, nursing, any of that. So, my dad had been in the Navy, my brother was in the Navy, and I thought, "you know, that might be really fun to go into the Navy" ...during my undergraduate career they opened up flight training to women in the Navy...when I

graduated, I put in for flight school and luckily I got picked. I was one of four women that year to get picked out of ROTC and we were the first class of women to do so...I was the fourteenth woman to get designated a naval aviator.”

American Airlines First Officer Carrie Peterson discovered aviation as a young professional working for the local Sheriff’s Department as a Deputy Sheriff. Carrie explained in reference to her flight aspirations that during her three-and-a-half-year tenure in law enforcement, “one day I was like, “I’m going to make this happen.” So about when I was 27 years old is when I first started learning how to fly...I became a flight attendant because my big sister in my sorority in college—she’s a flight attendant with American Airlines—said that with her work schedule, she was like, “you could definitely go to school.” So I quit being a Deputy Sheriff and I became a flight attendant for United Airlines while I put myself through flight training.” While Carrie pursued an unusual civilian route as a flight attendant per the recommendation of a friend who thought that serving as a flight attendant would afford Carrie the requisite flexibility in order to pursue a career as a pilot, Carrie’s story differs from those of the six interviewees who were hired in the era immediately following deregulation. While most of the women acknowledged the adult mentors who originally sparked their interest in aviation, Carrier Peterson spoke about her pre-understanding of the industry: “I didn’t have any friends who went through flight training. I had no idea what I was getting myself into. Like, I was just jumping two feet full in, not even knowing.”

Helen Anderson, a First Officer with American Airlines, was also a later hire in the airline industry. She began wholeheartedly pursuing a career as a pilot after deciding that her passion lay outside the business world and talking with her family in order to plan her next steps: “one day I was talking to my brother and I was, I would say twenty-five at that point, and he said to me, “if you could do anything you wanted to do, what would you do?” and I said, “I think I would learn how to fly.” Helen and her brother visited a local airfield and flight school that was running an airtime giveaway: three names would be drawn from the box of folks who entered the contest, each of whom would then receive one hour of free flight time. Helen explained, “I put my name in the box and the next day they called and they said, “you’ve won a free hour of flight time with an instructor,” and I took that and I started flying and I just never looked back.”

Coinciding Career and Family

A woman’s ability to bear children shapes the way in which her professional endeavors and perceived, especially when this discussion is placed in an historical context. Geographers have spent considerable time researching the different ways that women experience the world through a gendered lens, including in relation to child bearing and rearing.

All interview subjects spoke at length about their coinciding experiences with aviation and family. Some of these women focused on the importance of their children to their professional experience, the role of their spouse in perpetuating a functional family dynamic, the quality of time that these female aviators were able to share with their loved ones, and the various flexibilities afforded to them by the airline industry that allowed these women to enjoy their

careers and their roles within their family. However, other women indicated the difficulty that a professional life of a pilot imposes on the family dynamic. Nonetheless, all eight women alluded to the untraditional nature of their family dynamics and the ways that aviation both adapted to that nature as well as perpetuated it.

My own mother, Margaret Bruce, added perspective to her experience being married and raising children while also continuing to fly as a First Officer for US Airways. Though in her mid-30s and a Captain with the company prior during the early years of her marriage, Margaret Bruce was recalled that her seniority number did not allow her to remain a Captain at the Charlotte hub when Piedmont and US Airways merged in the late 80's. Margaret explained that, had she wanted to continue as Captain, "I could have gone to Baltimore or Pittsburgh but I was newly married and I didn't really think I wanted to spend my first years of married life sitting in a hotel room in another city waiting for the phone to ring." Furthermore, "when twins came, it was very helpful to have big control over my schedule because my husband did not." Though her husband didn't have enormous control over his schedule as a Captain with TWA based out of St. Louis, he did understand first-hand the industry and the career that his wife had also pursued, a fact that Margaret said helped their marriage. Although the pilot duo made the family dynamic work once kids were introduced into the equation, Margaret indicated, "my kids were so important to me that if I didn't have a good job, I wouldn't have had a job at all. I would have stayed home, been an at-home mom. I would have wanted to do that."

Much like Margaret Bruce's experience, Karen Ruth also notes that her delay of marriage and kids might have helped both succeed alongside her professional endeavors: "I was thirty-five before I got married so by the time I got married, I was a Captain and I had already travelled the whole world, gone to Europe, gone to Asia, gone to Russia, and I had gotten all of that out of my system. And at thirty-five, as a Captain, I was financially set and I felt like I was a very calm, seasoned mother to-be." Although Karen was a mature and relaxed parent, it is also important to recognize that she and her husband enjoyed a unique parenting process; as opposed to the common idea of a stay-at-home mother, Karen's husband became a stay at home father until the couple's daughters got to first grade, at which point he returned to work part-time as a business analyst computer programmer. Finally, just as Margaret Bruce had noted, Karen Ruth explained, "The only time that I really didn't want to go to work was after I had babies. It was really hard for me to be at work when my husband is watching my child make her first step or say their first words."

Marilyn Koon has also made children and marriage work alongside her experience as a female aviator, though her story is similar in many ways to those of Margaret and Karen. Marilyn married in her early twenties to her husband but recalled about children, "that wasn't ever on my radar scope...It wasn't until I got to my early thirties that I thought, "oh my gosh, I might run out of time here." At thirty-four years old, she and her husband had their first of two sons. However, her professional experience as a new mother was also difficult, much like it was for Margaret and Karen: "when [your kids] are asking you not to leave because they don't want you to go away for three days, I think that was the hard part." Furthermore, "when you leave

on a three-day trip and you come home and you want to learn all about what happened, the last three days. Well they've already lived it, they don't want to tell you." It was because of this push and pull between family and work that Marilyn says she took a job as a Check Airman, a job whose title didn't thrill her but whose hours facilitated a much happier home dynamic. As a Check Airman out of Pittsburgh, Marilyn could spend time around her kids most weekdays and sleep in her own bed at nights.

Although Marilyn, Margaret and Karen maintained their family lives alongside their careers—albeit sometimes using less common tactics—Dianna Applegate and Valerie Wells described their different experiences as female aviators, mothers and wives. Valerie Wells described the importance of her scheduling decisions to her role as a mother: "I never flew more than 70 hours...And I was always a block holder so I never had to worry about being on reserve."

Valerie goes on to describe the seventy-hour a month schedule versus the more common eighty-five-hour a month schedule: "the difference between flying seventy and eighty-five is like an eighty-five-hour month usually is about fifteen days a month and a seventy hour is about twelve." Nonetheless, while Valerie was able to hold a predictable schedule at an airport in her place of residence and made the decision to cut back on the number of hours she flew a month, her now ex-husband chose to chase the more lucrative seat, the more lucrative plane and the more lucrative schedule. Valerie describes: "he was still flying the most senior thing he could fly. So he would have a much worse schedule than I would. Like he would be a junior block holder so he wouldn't know if he had Christmas off or he wouldn't know if he was going to get weekends off or things like that, whereas I always knew."

Though equally nuanced, Dianna Applegate's experience with marriage and children breaks the mold of the four aforementioned female aviators. Although now in her second marriage to a wonderful husband of many years, Dianna described, "I lost my first marriage due to the stress of getting hired with the airline and the fact that after I got hired, I made significantly more money and had more social status than he did and he massaged his male ego by finding a number of somebody else's to be with while I was out on trips so that ended in a divorce." After having married again, Dianna and her husband opted not to have children because of their age, because of his children from a prior marriage, and because of a history with handicap in the family. That decision too, Dianna explained, contributed to the health and happiness of their marriage. However, Dianna had a more challenging experience fitting into her husband's social circle of doctors and doctors' wives. Speaking about the wives of the other men in her husband's medical practice, "I was ten years younger than [my husband] and that didn't sit well. And I was the only one that worked outside the home and not only did I work outside the home, but I had a good income and I had social status in my own right, not just my husband's name. And all of that caused a tremendous amount of resentment" among the other wives and in turn limited any opportunity for Dianna's friendship with the other women. Fortunately, "as time went on and [my husband's] group expanded and younger partners brought in spouses that were doctors and professionals and worked, that dynamic also changed and I'm very good friends with some of the younger spouses of his partners."

Finally come Lucy Young and Helen Anderson, two female aviators who prioritized professional goals over marriage and children... About her personal and professional experiences, Lucy Young explained, "I stayed in the reserves so it was like having two jobs. So I was really busy and I think my social life suffered for a number of years. I retired from the Navy in '98...I never got married or anything. I never really got attached long-term to anybody. I don't regret it at all...I have had a couple of very nice relationships."

Similarly, Helen Anderson explained, "I dated someone for eight years, and he loved it in the beginning, but then he just didn't want me to be gone all the time anymore. I can't do anything to change that...You spent three days home and four days gone. You're working out your problems over the phone... For me, I have not been lucky with that part of my life. For a couple of reasons. Not home. Spend more time on the road. I also think it's intimidating. This job is intimidating for some men." Regardless of the reasons, much like the other female aviators, Helen breaks the mold on the tradition depiction of mother, wife, and professional.

Drive and Ambition

In addition to the exposure that was commonplace for all of the female aviators with whom I spoke who were hired in the immediately post-deregulation era, all eight women spoke to their drive and ambition that carried them through the long path from private pilot to being hired at a major commercial airliner.

At the time that the six older female aviators were being hired, there was a push by the industry as a whole to get more women into the cockpit. While most companies kept their hiring procedures identical for men and women, United Airlines required less of their new female hires than of their male hires. Margaret Bruce attested: "I know United would hire women with something in the neighborhood of 7 or 800 hours." When asked how many hours most men had at the time of their hire, Margaret clarified, "Probably three or four times that. And mine were three or four times that. I had about 3,000 hours. I was a DC8 engineer and helicopter and all this other good stuff...the fact is, if I had been hired at 700 hours, I wouldn't have had a whole lot of experience to bring to the table. I think it's better for the qualifications to be kind of even." Helen Anderson also spoke to that hiring discrepancy.

Additionally, and arguably in reaction to this hiring discrepancy, many of the women pushed themselves to exceed the expectations of their male counterparts so as to leave no questions that they were qualified and deserved to be in the cockpit. Margaret Bruce stated, "I feel that there was an expectation that I needed to be that much better. I couldn't be sloppy in my procedures or my flying...I think in the long-run, to be considered equal, I had to be better. So if you mess up, somebody's going to be watching and it's going to be more noticed because there aren't as many of you. I was talking to one of my first officers who's black and we had a nice talk about that and he felt the same way." Similarly, Karen Ruth of Delta explained that when she is interviewing a hopeful female hire, "I don't want her to be good, I want that female to be damn good because if she's not, she's not doing me any favors and she's not doing herself any favors. Because what happens, because it is only seven percent of us, the men still have a chip

on their shoulder. Some of them do and say, “well I know why you were hired; you were hired because you’re a woman and you had to meet a consent decree.” You know, a quota. Well I never want that woman to think that. I want her to know that you were hired because you were just as good if not better than the men.”

This pressure on women to exceed expectations was echoed by all the interviewees. For instance, Carrier described, “I would work for six days in a row and I was based in Boston and I would fly down to Florida—Daytona—to do my flight lessons. So I would just stay there for ten days and fly like two lessons a day...I call it zero to hero. I went from zero hours to like, working for a major airline in five years.” Likewise, Dianna described of her experience as a flight attendant and prospective pilot, “There were times that I would fly a trip with ASA as a pilot, get off in Macon, drive the hour and a half up to Hartsfield, change uniforms and go out on a flight as a flight attendant...one month I was a Captain’s Flight Attendant and four months later, I’m his Flight Engineer.” Furthermore, Dianna went on to describe the personal conditions she overcame in order to achieve professional success as a female aviator: “I spent literally every penny I had on flight lessons. I ate the food that was on the airplane, I bought no clothes, I owned one dress for church, two pair of jeans and a few tops and a winter coat. That was it. It was a rough period of years but because I was focused on something I enjoyed and had a goal in mind, it didn’t seem that rough at the time.”

Helen Anderson, one of the two more recent hires with the airline industry, demonstrated her ambition when she abandoned her previous career and started from scratch as a prospective

aviator: “I quit my job and I moved to Florida and I went to flight school and got at it in a serious fashion...And I was done in a year’s time. I got all my licenses and then I flight instructed...I was on a mission. And I never thought it was hard, nor did I think it was overwhelming. Anything that’s new can be difficult, but I never ever felt that I couldn’t do it. I never felt that this is not a good choice. Ever. It didn’t occur to me. It never occurred to me that I wouldn’t get to where I was going to go.” Furthermore, when thinking about her regular flights as a seasoned aviator with US Airways, PSA and American Airlines, Helen fondly reflected, “I love it when the weather is really crappy, and I have to figure out how to get around all the nastiness, and then you’re screaming down on an ILS going, I’ll just say 150 knots, and then you pop out and there is the runway and there are the runway lights right in front of you and you have about a second and a half between the time you see it and the time your wheels are on the ground. I still think, after twenty-eight years, twenty-nine years in June, that is the coolest thing ever.”

Karen Ruth also spoke to her persistent drive to be the best pilot she is capable of being as well as her intense initial drive to get qualified and begin her career: “I knew what I was wanting to do and I was so young and I didn’t waste time. I graduated from college early and then I got my commuter job early and so that helped me leapfrog my way into the industry.” About her continued drive, even after decades in the industry, Karen added, “sometimes when I don’t fly for a long time, it drives me crazy and I have to go out and fly because I miss it. I like being credible and sometimes when I go for a long time, I don’t respect myself because I’m not credible and then I have to try extra hard to get my game on.”

Discrimination and/or Discrepancies in Formal and Informal Performance Standards

Unfortunately, although all eight of the women I interviewed demonstrated a love for what they do and an intense drive to always be better in order to meet their personal high-standards, their experiences within the industry indicate that there were external factors that either intended to minimize their accomplishments or question their qualifications. Discrimination against women as well as discrepancies in performance standards were relatively commonplace, particularly in the years immediately following the ADA of 1978.

Valerie explained that during a pilot's first year with a company—often called the probationary year—other pilots could write in letters about the new hire indicating why the company shouldn't retain the new employee. During her probationary year, Valerie was on a trip and she and her Captain were having dinner when, as Valerie explained, "he said, "do you really believe that you could get through your first year on your flying ability alone?" And I said, "yeah, I do, and if I can't, or you don't think I will, you can write that letter right now."

Furthermore, Valerie went on to describe a memory of when a male colleague returned to his base airport and told his pilot friends that he and Valerie had spent the week prior sleeping together. Valerie reacted by calling the person on the phone and asking him to explain himself, at which point the male colleague encouraged her to submit an application at Piedmont Airlines, where he worked at the time. Valerie went on to reflect, "here's this guy, instrumental to getting me hired at Piedmont Airlines. And why is he instrumental, why did I even call him? I called him because he was trashing my reputation. But it turned out to be what I needed to

hear when I needed to hear it that I went out and I got the money from my grandmother and got my ATP out of Teterboro and within two months of getting my ATP, they hired me.”

Carrie Peterson went to work for Planet Airways as a Boeing 727 pilot. Carrie said that, at the time of her hire, she was the only female pilot with the company. She then clarified, “they had had a few women who were actually hired but didn’t get through the flight training...I think they put me through a little bit more on the oral questions just to make sure I understood compared to the other guys because I was in [the examination] a lot longer than everyone else was and when I asked [the other guys] what kind of questions they were asked, it was like, “how many engines do we have?” And I was like, “Really? Because I was asked to pretty much build the airplane.” Carrie went on to surmise that the other women likely didn’t make it through the training process because their examinations were probably also more rigorous than those of their male counterparts.

Dianna Applegate also had a career ripe with both more minimal and more extreme examples of discrimination and gender discrepancies. Within the more serious examples, Dianna noted that as a flight engineer with a major airliner, “I go in and I start my preflight and I life my tabletop and there’s a used sanitary napkin sitting right there along with a very pornographic picture. I knew the first officer that had gotten off and he was one of those that was very dismissive toward the idea of females in the cockpit and I had seen him get off and he had smirked at me when he got off. I hadn’t paid any attention to it and then I was like, “oh, okay, well he left me a token of his affection.” Those sorts of things didn’t happen often but they

were not particularly unusual. You just, you know, got a piece of paper, rolled it up, put it in the trash, and went about my business. It was such a crude thing to do and reflected poorly on him and not at all on me and he was too blinded to see that.” Another colleague demonstrated in a more overt manner his opposition to women in the cockpit when, as Dianna said, “one first officer dismissively told me, “the best female airline pilot will still be inferior to the worst male airline pilot,” and he really believed that which meant that any little mistake you made... Every little thing you did that was different than the way they thought things should have been done or the way they thought they would have done it was noted.” Alternatively, there were also other more docile versions of gender discrepancies. Dianna said about her time early on in her pursuit of aviation, “when I was flight instructing, there were four of us on staff and yet I was the one the boss turned to in the morning and said, “have you made coffee?” and “why don’t you run and get lunch for everybody?” Furthermore, Dianna relayed a story about a maintenance issue her plane was having: “the mechanic came up to the cockpit to talk with us and he turns to my male first officer and they have this long discussion about what the problem is, what the solution for it might be, the best course of action, and after about fifteen minutes, I interrupted and I said, “gentlemen, just out of curiosity, are you planning on including the captain in this conversation?” And both of them just turned red from the toes up and we all burst out laughing because it was an unintentional action.”

Another woman who has been in the industry for some time, Marilyn Koon also had numerous stories that reflect just how pervasive negative attitudes toward female aviators spread. For instance, Marilyn went to a pilot’s bar after she had first moved to Pittsburgh. She explained,

“this guy sits down across from me. I don’t know this guy. And he says to me, “well what do you do?” Well, of course, I’ve only been with the company three months and you’re excited and you’re proud: “I just got hired and I’m a pilot.” And he goes, “oh, another woman pilot. You guys make terrible airline pilots. You guys don’t have any multiengine experience. You don’t have any jet experience. You don’t know how to work with a crew. All you have is little single-engine airplane stuff.” And he went on and on and I didn’t say anything, not one word. So, then he asked the proverbial question: “what’s your background?” Oh man, I was so happy he asked me that question. So I went, “you know, you’re right, I have that little single-engine time, that Cessna 150” and I just started talking about all the airplanes I’d flown starting with the little ones. “Cessna 150, 152, 170, 172, 182, 210. I do have multiengine. A Cessna 310 but it’s not jet. Oh, and then I have T-37 experience which is a subsonic twin jet engine which I’ve done stalls and spins and acrobats and formation in. Oh, and then I have T-38 experience. It’s a supersonic jet aircraft. Two engines, sits two people, and I broke the sound barrier. And then I have KC135 time that has four jets and has a crew of a four and I’ve flown all over the world. We refuel other airplanes.” Well his mouth dropped, literally dropped, and he got up from the table and walked away.” Furthermore, Marilyn had male colleagues say to her, “I’m glad that I’m senior to you women pilots so I never have to fly with you as Captains.”

Helen Anderson explained her experience with discrimination in the airline industry while also communicating her own resilience: “I’ve had guys say to me, just because they’re nasty, “you could possibly be the worst pilot I’ve ever flown with” ...I know truly I am not Chuck Yeager, but I

also know that I am very competent or I wouldn't be where I am today. You don't spend twenty-five years in the airlines and not be able to do what you do."

Women as Aviation Novelties

Many of the interviewees recalled some of the experiences they'd had that illuminated just how much their presence in the cockpit still surprised some colleagues and passengers.

Valerie Wells laughed, "people still get on the airplane and say, 'oh my god, we have a woman pilot.' I've been a pilot since before you were born." Much the same, Lucy Young said, "people still get on airplanes and see a woman pilot and look at that' like you're a Martian or something. So that hasn't really changed in my whole career of twenty-nine years." Helen Anderson had a similar experience: "I used to laugh because you'd see couples. One of them would nudge the other, then they would point. You could see them talking to each other. It's like being at the zoo. "Hey, check that out!" Helen even recollected a flight with actor Richard Gere on board: "I jump out of my chair, and I open the door and he is standing right there, and the look on his face! It was like, truly, are you kidding me? I just smiled and said "how are you?" He asked, "did you just drive us here?" and I answered, "I DID" ...and he asked, "are there very many of you?" and I said "No, there really aren't." Dianna Applegate also recollected that, "when I first got hired in '83, I was always the only woman in training class, usually the only woman in the pilot's lounge."

Although Valerie, Helen and Lucy looked at the situations that resulted from the lack of representation of women in the airline industry with a sense of humor, some of the other interviewees noted the more sinister undertones of the reactions to their small numbers. For instance, Karen Ruth observed, “when I first got hired, there were not many of us so it was very common to get the looks, the comments, like, “oh my god, did you fly this airplane? I couldn’t even tell the difference.” The difference from what? Or, “are you going to fly this airplane because if you are, I’m not getting on?” To which I would think, “Well that’s too bad because the airplane is going without you.” Lucy also hinted at the underbelly of smaller percentages: “Women are still such a small percentage of the airline that it’s a lot easier for them to be isolated or sort of disregarded and you don’t really reach critical mass in a population until you get to about twenty percent and then you’re considered a force to be reckoned with.” Finally, Margaret Bruce added her observation to the mix, saying that, while women may have been penetrating into the cockpit as Captains and Co-Pilots, “you just don’t see as many women in the training department checking, check airmen, you don’t see very many women in the FAA. You don’t see them in the Chief Pilot ranks.”

Fortunately for prospective female pilots and for young girls around the nation, Karen Ruth and her company, Delta, have been working to disassemble the barriers young women might perceive as prohibiting them from pursuing careers as pilots. Karen described, “Delta filled up an airplane from Minneapolis to Seattle with nothing but girls. They had to be age twelve to seventeen and everybody that touched that airplane was a girl. Female pilots, female flight attendants, female fuelers, female mechanics, female TSA, security people, gate agents were all

women...It was a 737 with 160 seats full of girls. We went to the Seattle Museum of Flight, pulled up right in front of the museum, offloaded, all the girls came into the museum, they all got to fly the F-18 simulator. Then they got to see the whole museum and they sat down in round tables and talked to women astronauts, women engineers, women propulsion engineers, mechanics, pilots.”

Military Training

While many pilots enter the commercial aviation industry as civilians, there is an alternate route that accounts for a sizable percentage of current commercial aviators. Military aviation was opened to women around the same time that the airline industry was deregulated as a whole. Military aviation represents a unique path on several levels.

First, it is important to note the prestige that accompanies time spent in the military as well as the resources made available to members of the United States armed forces. Pursuing aviation with the military allows pilots to progress through their ranks at a much more rapid pace than would otherwise be possible and to attain their various certifications while avoiding the cost-intensive character that traditionally defines an interest in aviation.

Military aviation also exposes these flight specialists to cutting edge technology that they might not encounter until decades later, if ever, within the civilian aviation arena. Exposure to new technologies means that military aviators gain the requisite basic flight skills while also

acquiring experience with advanced military technologies that are typically integrated into civilian flight networks several decades after their introduction to the military world.

Interviewee Lucy Young came to the commercial aviation industry by way of the United States Navy. She entered the Navy ROTC at Purdue and noted about her ROTC group, "It was the first class. I was in the first class to admit women. Fall of 1972 and I graduated in May of 1976."

Upon completion of her bachelor's degree at Purdue, the Navy had just opened the Naval flight program to women. Lucy applied for the program, was accepted, and as she described, "I went to flight school and I was the fourteenth woman to get designated a naval aviator." Regarding the application process, Lucy explained, "the men were guaranteed a slot if they passed all the tests. The women were not. We had to go before a selection board. So I had a couple of hurdles to get over to get into flight school but it all came together."

Lucy echoed many of the points listed above about Naval versus civilian aviation. In her interview, she explained, "I still recommend the military because you will not be paid poverty wages. You'll be flying the top-notch aircraft that exist and you will be flying all over the world, getting tremendous leadership experience and serve your country, and make decent money actually, instead of going the regional route where you're starving and treated like an indentured servant."

Lucy spoke about her transition from the Navy flight program into the commercial aviation industry. She emphasized her reasons for leaving the Navy, some of the challenges associated

with that path, and some of the benefits of the Naval training program. With respect to her motivation for leaving, Lucy explained, “the Navy career path wasn’t that enticing because women were so limited in what they could do and I knew that I would be doing more desk flying than real flying so I wanted to transition to commercial airlines. And thanks to some pioneers like Bonnie Tiburzi and Emily Warner, the airlines had opened up so I just tried to get in as soon as I could and it took a couple years but I was eventually able to get my foot in the door at Piedmont Airlines.”

However, Lucy’s initial entrance into the industry after a successful seven-year full-time career with the Navy presented some challenges. Lucy explained that at the time she was exiting the Navy, “there were a lot of people getting out of the military because it was peacetime... there were a lot of military pilots getting out and trying to get airline jobs.” Although the influx of Naval aviators pursuing careers in the commercial aviation industry made it more challenging for Lucy and numerous other pilots to find employment, the Navy provided other benefits. For instance, Lucy elucidated, “the military regimentation was good. It makes it really easy to handle ground school and getting up early and all that stuff. I mean, they tell you to study something and you study it. You’re just so used to getting everything down right in the military so that wasn’t too hard. So yeah, I think it was a great background to have and it gives you credibility. Because people find out you’re a Navy pilot and they’re like, “oh, well she can fly,” where as the other women I think have to prove themselves.”

Finally, despite the benefits that the Naval entrance into commercial aviation industry provided in terms of credibility and routine, there was one major drawback. For commercial aviation, a pilot's seniority determines his or her career. A person might have more or less freedom to move to higher pay-scale planes, bid better flights, pick and choose a schedule, or even designate a specific airport base, all depending on that person's seniority. About her own time in the Navy and its impact on her commercial aviation career, Lucy said, "it cost me some seniority actually because I stayed in for six years and I ended up staying in for 7 years. So people who graduated my year...got scooped up by Piedmont and they are way senior to me, way, way senior to me. But I'm still glad I went the route I did."

Although her experience was unique in several aspects, Marilyn Koon's time in the Air National Guard resembled that of Lucy's in the Navy. Marilyn was in the vanguard class of female Air National Guard pilots, having been selected to be part of an armed forces cross-section of women trained as aviators prior to the introduction of women at the Air Force Academy. While Marilyn's Guard experience afforded her similar credibility, experience, and capacity to handle the training process, she was also able to pursue a civilian career while simultaneously continuing her involvement in the Guard. This in turn meant that she didn't have to sacrifice commercial airliner seniority in order to remain active in the armed forces.

Related, Margaret Bruce also explained her perspective as a hopeful military pilot before her time: "I had even wanted to go into the military to fly in the early 70s and they did not accept women for aviation. That was a brief tap on the shoulder where I felt like, "oh I was interested

but, oh, that doors not available” or “we don’t train women for combat. Would you like to be an air traffic controller?”

Although the military route represented a straightforward training opportunity for Lucy Young and Marilyn Koon that helped them finance and pursue their goals of becoming commercial aviators, the Naval Aviation course stagnated Lucy’s career path. Furthermore, because Naval aviation didn’t even open its doors to women until 1974—long after women could begin climbing through their ranks on the civilian track—many women bypassed the military in their pursuit of an aviation career as was the case for Margaret Bruce. While the military presented an enormous opportunity for Marilyn and Lucy, both in terms of flight experience and personal growth, it did not expedite their commercial careers. This fact remains true to this day and might explain the minimal numbers of women also entering the military ranks as prospective pilots.

Support Structure

As is the case with many professional endeavors, intensive training requires a support structure. Margaret Bruce said in her interview that pursuing a career as a pilot requires, “Time, money and motivation all at once.” All eight of the women with whom I talked spent considerable time discussing the people who had been influential to their flight endeavors. That influence came in the form of financial assistance, emotional support, verbal encouragement, professional advice, and even hiring help. Although the forms of assistance

that each woman noted were different, all eight female aviators gave their due appreciation to the friends, family, and kind professionals who had helped them along the way.

When discussing the influential people to her career as an aviator, Dianna noted a male Captain, a female pilot and the numerous training instructors who respected her drive. She fondly recollected about her time as a flight attendant, “one of the Captains with whom I flew was teaching students in Wilmington NC. As a Flight Attendant, I was based in Atlanta GA and he basically said, ‘I don’t teach ground school but if you want to fly up to Wilmington on your off days, I’ll be glad to teach you how to fly an airplane’... I became like the sixth kid in his family. He had five kids, four daughters, one son, his son had epilepsy so he couldn’t fly, and none of his daughters were interested in flying so I just became the sixth kid in the family, the one that knew how to fly. He didn’t charge me for the flight lessons but of course I paid for the airplane and everything.” About her female colleague, Dianna said, “one of the female pilots who was based in Atlanta kind of took me under wing while I was a flight attendant and knew I was learning to fly...she actually still flew for a corporate plane that she had flown prior to joining Piedmont, and she would take me on those trips with her. It was inspiring because we were friends and I could talk to her about anything and she had grown up in aviation and had a tremendous amount of wisdom to share.” Finally, Dianna gained a tremendous amount of simulator experience, at least in part due to the support of training staff and male colleagues at the training center: “I became friends with a lot of the guys and they would take me in the simulator and let me fly the simulator. So I gained actually a lot of instrument time and understanding and did a lot of learning in the Piedmont Airlines simulators, primarily the 737

because that was the simulator that was open most often and there were a number of the check pilots that really, I think, admired and supported a flight attendant trying to get her ratings.” However, while many other friends and coworker banded together to help Dianna pursue a career as an aviator, she notes in a very matter of fact manner that her father was not so thrilled about the idea: “University of Tennessee offered flight lessons and my dad informed me that that was a waste of time and that girls didn’t fly airplanes.”

Likewise, Lucy communicated the importance of Navy colleagues in her career outside of the military. However, she also indicated that she admired and was inspired by an older female aviator: “One of the pioneer women Naval aviators, Rosemary Mariner, she was a good mentor for me and guided me. She was in the very first class of women pilots and she gave me a lot of good advice. In fact, she was that lady that went to Purdue and graduated around 1973 and she was in the very first class of women Naval aviators.” Regarding her Navy friends, Lucy said, “there was just a lot of networking between me and my Navy buddies and just trying to help each other get the right ratings and get the foot in the door to get hired.”

Margaret Bruce relied on the guidance and influence of a male friend and colleague as well as a small flight school’s flight generosity. Margaret explained that her friend, Russ Ferris, and some of his friends, after having all been hired by Pacific East Air, “said, “why don’t you put in an application over here?” And they walked my application in...Anyway, they hired me at Pacific East Air.” Furthermore, Russ Ferris gave her a piece of advice that then influenced the trajectory of Margaret’s thirty-year career: Russ told Margaret, “don’t just do corporate

because you don't think that you can't get more. If you want to be an airline pilot, aim your sights on being an airline pilot." Much earlier in her training, Margaret went to work for a small flight school operating out of a local airport. Rather than taking cash, Margaret asked whether she could instead take her compensation in flight time. Although the flight school owner was hesitant, "his buddy said, "just fly the planes. Fly the planes as much as you can." And so when the instructors were there, whenever they weren't teaching somebody something, I put "back in half an hour" on there and we'd go off flying and all these different instructors would teach me different things so I went from having a handful of hours to having like 150 hours just like that."

Likewise, friends and professional connections played a crucial role in Carrie Peterson's progression through the airline industry. For instance, Carrie explained, "I remember my best friend picking me up at the airport and driving me to flight school and dropping me off and she was all proud of me like she just dropped off her kid to kindergarten for the first day." In terms of professional connections, Carrie also explained, "every pilot that I flew with, I would talk to them about it. A lot of them gave me different advice about how to finish up." She continued this explanation when she relayed a story: "one of my girlfriends was flying with one of the Captains who gave me some advice and he said, "do you remember this girl? Do you know her? She's Boston based," and [my friend] happened to say, "yeah, she's one of my good friends," "well will you please give her this message for me?" And he actually had a job lined up for me for when I needed to build up my flight time because he remembered me and thought that I would be perfect for that position." Furthermore, although she wasn't an instructor at the

flight school where she had progressed through many of her ratings, the flight school was facilitating a round of interviews for a third party employer interested in hiring a pilot. Carrie said, “my flight school called me and said, “hey, we want to give you this opportunity to do an interview” ...they knew I had the flight time and I was really working hard to do that and just because I wasn’t a flight instructor didn’t mean I didn’t earn my position at that first job I got.”

Valerie Wells’ grandmother ended up being the backbone of her support structure in her pursuit of a career in the airline industry. Valerie explained, “I earned enough money to get my private pilot’s license but I couldn’t earn enough money to go to school and do my flying at the same time but my parents weren’t able to support that and it was actually my grandmother that paid for my college on my mother’s side. Which to me was even more amazing. She was born before aviation. She was born in like 1900, and the fact that she was willing to put her money on the table for me to be a pilot is kind of an amazing thing.” Valerie goes on to explain that, in addition to helping her through school, her grandmother also continued to finance Valerie’s certifications in aviation: “She came up with the money to get my ATP in a twin and then I paid her back.”

Although Marilyn Koon’s parents were somewhat confused about her pursuit of a career in aviation, other people in her life served as her support network in her endeavors. For instance, in talking about one of her college friends, Marilyn said, “[my friend’s] dad was a pilot in the Air National Guard and she had said to me, “you know, Marilyn, you have your private, you like flying. You ever think about joining the guard? They’re not taking women pilots yet but maybe

you should think about joining the Guard"...because when they do open it up, you'll already be in the Air National Guard and you'll be ready to go." This in turn ended up being exactly what happened, and largely was the product of the encouragement of one of her friends and the father of her friend.

Karen Ruth indicated that her neighbors helped expose her to the airline industry and encourage her to pursue that interest. Karen's father also supported and encouraged her interest in aviation, albeit in a slightly different manner. Karen said that although he didn't continue afterwards, "my father always had an interest in flying. He took private pilot ground school with me when I was fifteen."

Helen Anderson summed up the experiences of these seven other female aviators quite well when she said, "If it weren't for the support of my parents, and my siblings and their spouses, and friends...It's monetary, it's psychological, it's emotional, it's that whole gamut."

Fortunately for upcoming generations of female aviators, people of the past aren't the only influential forces making waves in aviation; Margaret Bruce explained that she likes to pay things forward: "fast forward fifty years, fifty-five years, when I have little kids come up to the cockpit, I'll even say, "hey, if you want to learn to fly, you can. You just have to take a lesson and see if you like it." So just trying to let them know that everybody who's doing what they're doing had to learn and you can learn too." Similarly, Carrie explained, "I'm mentoring five flight attendants right now here at US Air while they're taking their lessons and stuff and I'm actually

trying to get a non profit organization started called, 'From Cokes to Yokes' that would help flight attendants get through training because it's so expensive and a lot of them don't have the money." Finally, Karen Ruth's job at Delta involving hiring and recruitment means that she is constantly having to reach out and provide support to prospective company hires. Karen explained, "Because I do pilot hiring, I go out and I do college talks, I do high school talks, I mentor, I go to the Student Aviation Management Conference every year at the University of North Dakota

Training Costs and Hidden? Cost

Much of this research endeavor thus far has considered the qualitative experiences of eight successful women within the airline industry. Some of their input indicates the ways in which these women rocketed themselves through the industry, the support networks that aided them, and the routes they chose to achieve their success; however, other portions of their interview input indicated that there were certain costs to bear for a woman hoping to pursue a career in the airline industry. These eight women indicated the costs they incurred by balancing family and work or the costs they experienced as a result of discriminatory attitudes. But moreover, there are very literal financial and temporal costs to be borne by any prospective pilot. Among the numerous costs that might serve as barriers to woman in the airline industry, the financial and temporal burdens detailed below represent a highly influential factor.

Private

	Price per hour	Iterations/hours	Total
Aircraft Rental	105.00	40	4231.50
Flight Instruction	35.00	30	1050.00
CATS Computer Test Written Exam	150.00	1	150.00
Check Ride w/ FAA examiner	400.00	1	400.00
Aircraft Rental for Check Ride	105.00	1.5	157.50
Medical	115.00	1	115.00
Jeppesen Private Pilot Kit	279.00	1	279.00
David Clark H10-13S Stereo Headset	310.00	1	310.00
VFR Sectional Chart	9.00	1	9.00
Airport Facility Directory	5.50	3	16.50
ASA VFR Kneeboard	14.95	1	14.95
ASA CX-2 Pathfinder Flight Computer	69.95	1	69.96
			6821.40

Instrument

	Price per hour	Iterations/hours	Total
Aircraft Rental	105.00	70	7507.50
Simulation Rental	30.00	20	600.00
Flight Instruction	40.00	20	800.00
Simulation Instruction	40.00	10	400.00

CATS Computer Test Written Exam	150.00	1	150.00
Check Ride w/ FAA examiner	400.00	1	400.00
Aircraft Rental for Check Ride	105.00	1.5	157.50
Jeppeson Instrument/Commercial Kit	299.95	1	299.95
IFR Enroute Low Altitude Chart	7.50	2	15.00
Airport Facility Directory	5.50	6	33.00
ASA IFR Kneeboard	14.95	1	14.95
			10,377.90

Temporal

The time requirements for each type of licensing or certification are as follows:

License/Certification	Hours with Instruction	Hours of solo flight	Total hours needed
Private	10	20	40
Instrument	15	75	Rolling
Commercial/Instructor			250
Air Transport Pilot			15000

Private:

§ 61.109 (a) *For an airplane single-engine rating.* Except as provided in paragraph (k) of this section, a person who applies for a private pilot certificate with an airplane category and single-engine class rating must log at least 40 hours of flight time that includes at least 20 hours of flight training from an authorized instructor and 10 hours of solo flight training in the areas of operation listed in §61.107(b)(1) of this part (FAA Regulations).

Instrument:

§ 61.65 (d) *Aeronautical experience for the instrument-airplane rating.* A person who applies for an instrument-airplane rating must have logged:

(1) Except as provided in paragraph (g) of this section, 50 hours of cross-country flight time as pilot in command, of which 10 hours must have been in an airplane; and

(2) Forty hours of actual or simulated instrument time in the areas of operation listed in paragraph (c) of this section, of which 15 hours must have been received from an authorized instructor who holds an instrument-airplane rating (FAA Regulations).

Commercial:

§ 61.129 (a) *For an airplane single-engine rating.* Except as provided in paragraph (i) of this section, a person who applies for a commercial pilot certificate with an airplane category and single-engine class rating must log at least 250 hours of flight time as a pilot (FAA Regulations).

Airline Transport Pilot:

§ 61.159 (a) Except as provided in paragraphs (b), (c), and (d) of this section, a person who is applying for an airline transport pilot certificate with an airplane category and class rating must have at least 1,500 hours of total time as a pilot (FAA Regulations).

Discussion

My eight interview subjects' experiences in the aviation industry a sliver of the larger population of female pilots in the commercial aviation industry; however, their stories together

can be taken as indicative of potential trends or experiences in the larger population of female aviators.

All eight women discussed at length their entrances into aviation. Although there is no conclusive or normative path for entrance into the industry, as proven by these eight spectacular women, the different entries into aviation and continued involvements in the industry demonstrate two common themes: 1) of the eight women with whom I spoke, the six women who were hired by a major commercial airliner during the era immediately following the Airline Deregulation Act of 1978 all had prior exposure to aviation and the many popup airlines offered new employment opportunities; 2) once they had decided to pursue aviation, all eight women demonstrated an intense and innate ambition to succeed in their goals.

Taking point number one, let us discuss the exposure these women had to the aviation industry and how this exposure might have played a crucial role in encouraging their interest in flying.

To summarize the interview data, Marilyn Koon became interested in aviation as a result of her uncle and his flight aspirations; furthermore, Marilyn's uncle actively encouraged her to pursue aviation by giving her money to begin her training and by talking with her about aeronautical concepts. Dianna Applegate said that her grandmother would take her to the local airport to watch the planes take off and land. She also had exposure to the flight world when she took time off after having graduated from college to be a flight attendant. Margaret Bruce had an apartment neighbor interested in gaining experience as a flight instructor and approached Margaret to see whether she might be interested in being his guinea pig student. The

opportunity presented itself to Margaret and she ultimately connected the dots that her own mother had a pilot's license and that it was something she could do too. Karen Ruth lived in an area with Northwest pilots as her neighbors. Lucy Young's father and brother were in the Navy so she joined. Lucy met a woman while at Purdue who was on a flight track and Lucy was inspired so when the Navy opened up its flight training to women, she took the leap.

Alternatively, Carrie Peterson had very little exposure to the industry and even remarks that she jumped into the training process without any true idea of what she was getting. Helen Anderson, a later hire like Carrie Peterson, also had less exposure to aviation but was interested in the industry nonetheless. Both of these women decided to pursue their paths a little later in life and while employed in another field.

This theme within the recounting of how these women became initially interested in aviation begs at the importance of exposure to aviation. For many of these women, seeing other females in the cockpit was an important step in connecting that they, too, could pursue that path successfully. However, given that many of the six older women with whom I spoke began learning how to fly before commercial airliners even began hiring female pilots in 1978, opportunities for exposure were limited. Of the six older female aviators, only Lucy and Margaret mentioned that they had exposure to other female pilot while themselves considering pursuing that path. All six older women noted that they had exposure to male aviators and that many of these men were encouraging of their aspirations to pursue aviation. For women who were hired as pilots in the era immediately following deregulation, it was

important that they see other women in those roles or that they interact with supportive men in the industry. By extension, persistently minimal numbers of women in the industry are arguably a result of the lack of women currently in the cockpit as well as insufficient support that men in the industry extend to young women who have a potential interest in flight.

Additionally, all eight women demonstrated their capacity to persist in a male dominated field, despite the challenges that their paths presented. Given that a pilot interested in pursuing a career in commercial aviation must complete 1500 hour of flight time in order to simply be qualified to be an aviator with a commuter airline and given the costs that this amount of training requires, the path from zero hours to commercially qualified is a demanding one. While the manner in which these women met these demands differed, all eight women ambitiously approached these challenges head on and with an intense amount of drive.

There are literal representations of these women's drive to grow into competitive and qualified aviators so that they might become commercial airline pilots in a male-dominated industry. For example, Karen graduated early from college in order to jumpstart her career. As a result, she was flying her first major commercial airline job by age twenty-three, a spectacular demonstration of an expedited pathway into the commercial aviation world. Additionally, Karen spoke about her desire to remain qualified and competitive in the sky. Similarly, Carrie rocketed through the qualification process. She chose to take flight lessons twice a day for ten days sandwiched between several days of work as a flight attendant, a demanding training process that in turn allowed her to be hired by a major airliner in only five years. Dianna also

chose to pursue aviation as a flight attendant and would get off one plane as a flight attendant then board another plane as a pilot. She also commented on the financial challenges of the process but how she was impervious to these challenges because of her deeply-held desire to succeed. Lastly, Helen opted to quit her job in the business world in order to move to Florida and begin taking flight lessons; in only a year's time, she climbed from having no knowledge of aviation to being qualified to instruct other prospective students. The fast pace at which she excelled through her qualifications also demonstrates Helen's drive to be an exceptional aviator at the highest level possible.

Although also indicative of drive, two of the eight women spoke of the pressures that were spurred by the co-mingling of their gender and their career choice. En lieu of the disparate qualifications expected of female aviators at United Airlines, Margaret clarified that her flight hours were completely competitive with those of her male colleagues. Furthermore, she went on to explain that women within the industry hoping for equitable treatment had to exceed the abilities of their male colleagues. Karen lent institutional perspective to this individualized opinion when she explained that in her capacity as a hiring official with Delta, she looks for female applicants who were irrefutably and undeniably qualified—often more qualified than male applicants—so that there is never a question of whether they deserve their job or whether the decision to hire them was a product of their gender.

“Time, money and motivation all at once”: summed up by Margaret Bruce, this statement easily encompasses the topic of support structures that all eight women indicated were crucial

to their success. While these women demonstrated their ambition, their success was also a product of the people who surrounded them and the helpful roles they filled.

Dianna relied on the help of her colleagues; a male flight instructor generously reached out to her and taught her how to fly free of instruction costs. A female pilot also heavily influenced Dianna's career by giving her exposure to a corporate operation. Various other male instructors at flight simulators gave Dianna the green light to practice on Piedmont's expensive training machinery. Margaret indicated that, above all else, her friend and colleague, Russ Ferris, was enormously influential as he gave her career advice and even helped her get hired with her first commuter. Lucy relied heavily on the networking that prevailed among her Naval colleagues after they had exited the military and were searching for civilian jobs. Carrie also illuminated the various professional connections she was able to make that later helped rocket her into the industry. For instance, she met a captain while she was working as a flight attendant and that captain later went out of his way to organize a flight job for Carrie. Similarly, her flight school where she had learned to fly reached out to Carrie with details about an interview opportunity. However, for Carrier, her friendships also played a crucial role in the emotional component of her support structure. Likewise, Marilyn Koon's college friendship in turn produced a lot of career advice as well as exposure to the Air National Guard. Without that friendship, Marilyn's career might have gone completely differently. Karen relied on the guidance of her neighbors who were already working with a major airliner. However, she also indicated that, in addition to the support of friends, she had the support of family. Her father attempted to enter into aviation alongside Karen and then supported her path after he was no

longer able to continue. Likewise, Valerie also noted the importance of her family; her grandmother, born in an era when women were granted far fewer freedoms, put down the money to help finance Valerie's climb through aviation ranks.

The types of support these women received varied and there was also a range in the people from whom they received this support. Friends, family and colleagues extended time, their knowledge, their financial support, their friendship, their advice, and their connections within the aviation industry. For many of the interview subjects, their climb through the industry would not have been possible were it not for the support networks that helped them along the way. For instance, Valerie might not have been able to pay for her flight college were it not for the support of her grandmother, and Dianna might not have had such a magical training process were it not for the pilot who reached out to offer her a helping hand in her endeavors. While the ambition these women demonstrated time and again was arguably the largest determinant of their long-term success, all eight women noted that the various types of support they received from their friends, family and colleagues were crucial in their endeavors. These female pilots were not able to envision this professional goal of becoming a commercial aviator and then accomplish that goal as a singular person; rather, as was mentioned before, these women gained exposure to other female pilots and other supportive male colleagues who in turn helped these women envision themselves in the cockpit, and then they relied on their support structures in their climbs through the qualification ladder. For woman trying to gain an edge in the highly competitive and financially intensive aviation industry, singularity is

hardly an option. Arguably for women trying to get a foot in the door of any high-skill, male dominated industry, a support structure is key.

All eight women explained that they never doubted their career choice or questioned whether they wanted to continue on their path. However, despite the support structures that helped these women propel themselves through the industry and the ambition they brought to the table, several of the women noted that they had internal turbulence about going to work after having had children. This in turn begs us to consider another major theme that these women raised in their interviews: the intersection of family and career. The disparate topics in this theme all centered around this idea of the push and pull between personal sphere and professional life. Some of these women stepped back in their careers in order to juggle family and work. Others relied on their husbands to make that professional sacrifice. Some women lost their marriages and others never got married in the first place. Some of these remarkable pilots even noted the struggle in finding time for friendship. While many of the eight women indicated that they thought that a career as a pilot could align with a personal life as a wife, mother and friend, there was no normative picture of how career and personal life alignment.

Valerie Wells and Margaret Bruce both said that they stepped back in their careers after having kids. Both women moved back to the co-pilot's seat and Valerie even opted to fly fewer hours per month. Furthermore, Margaret delayed having children until in her forties. Similarly, Marilyn waited long after having been married to have children and then she decided to take a job as a check airman—a job that she noted she had serious reservations about taking—for the

sake of spending more time with her family. Karen also delayed having children as a result of her professional endeavors. However, unlike Valerie, Margaret and Marilyn, Karen continued progressing in her career and her husband opted to sacrifice components of his career for the sake of his family. While Margaret, Karen, Marilyn, and Carrie have figured out how to fit marriage and career in one lifestyle, Valerie and Dianna both lost a marriage in the wake of their professional endeavors. Furthermore, Dianna also noted the challenges that her professional success presented to her friendships in a time when many women were still relegated to the household. Finally, neither Lucy nor Helen have married, instead citing that their careers as female aviators have been the most fulfilling aspect of their lives.

These eight women have achieved professional success by both their own metrics and also by societal standards; they have worked their way up to a commercial aviation level, and many of them are Captains within the industry. That being said, this professional success did not come without personal costs, and likewise personal happiness took a professional toll. While some of these eight aviators decided to try and align marriage and/or children with their professional endeavors and others chose to focus on their career, the fact remains that all eight women relied on nontraditional personal-professional dynamics. Much like their career choices were out of the norm for women of their generations, their family structures were also unique.

This concept of women in aviation is worth considering because of the staggeringly low numbers of female pilots at all qualification levels and particularly at the major commercial airliner level. While women have been much more integrated in numerous other high-skill and

high-compensation professional environments, that has not been the case for women in aviation over the past half century. Instead, low numbers of women persist and to this day, these eight women note that their novelty within the cockpit has not changes over the course of their careers.

Valerie, Lucy, Karen, and Helen all said that passengers continue to remark or react to their presence in the cockpit instead of in the cabin. While these reactions have been a mix of positive and negative feedback, their presence in an historically male-dominated space continues to be a point of commentary. Lucy went on to provide a theory, that a minority population reaches critical mass when they cross the threshold and comprise more than twenty percent of the larger population. Given that women at the major commercial airliner level represent less than seven percent of the larger population of airline pilots, women remain novelties in the industry.

The presence is noted as an abnormality and this in turn often means that women in the cockpit face different forms and severities of discrimination. For these eight women, discrimination and presence within the industry as a novelty were two central themes. For some, this also meant that biased men made clear their disdain for women in the cockpit. In other situations, it meant that these women were held to different standards than their male counterparts. For instance, Valerie, Dianna, Marilyn, and Helen all remarked that they faced contempt from male colleagues about their presence in the cockpit. Some demonstrations of that disdain were more benign such as a Captain commenting to Marilyn about his seniority

bracket when compared with those of his female colleagues. However, other examples were much more hostile such as Dianna's incident as a flight engineer and Valerie's incident with sexual intimidation from a colleague. Furthermore, these eight women didn't just face bad attitudes in the cockpit but faced dual performance standards. Carrie, Valerie, Dianna, and Marilyn all noted instances when more was expected of them than what would have been expected of their male colleagues. Carrie relayed her experience during the flight training portion of her employment with Planet Airways and Dianna explained her dynamic with her boss while flight instructing. While not ultimately deterring for these eight successful female aviators, these experiences proved to be influential nonetheless. Several decades after the fact, many of these women were able to recall their encounters with discriminatory attitudes in the airline industry as well as the more-rigorous standards expected of them as female aviators. Additionally, both Carrie and Helen, more recent additions to the female aviator ranks, noted the discrepancies and discrimination that persists within aviation. Ultimately, these attitudes likely play a key role in these women's professional experiences and likely the professional experiences of other female aviators.

Given that the purview of this research focuses on female pilots within the commercial airlines, most of this thesis focuses on the civilian side of aviation. That being said, there are substantial flight departments within numerous branches of the military and many opportunities for prospective pilots to achieve their certifications as members of the armed forces. While this topic in particular begs further research, these interviews with eight female aviators employed by commercial airline companies drew out stories pertaining to the military worth discussing.

Lucy noted the prestige and respect associated with her reputation as a Naval aviator; additionally, she cited the Navy regimen as one of the reasons she was able to perform so well in the commercial airline industry. Likewise, Marilyn noted that she gained respect by coming to the airline industry by way of the Air National Guard. These two women associated their military flight training as crucial for their success and central to their professional experience. More research regarding this particular theme might be appropriate.

Ultimately, many of the women indicated the presence of a strong support structure coupled with a deep internal drive to succeed as a female aviator. This support structure and drive in turn arguably promoted the success of these eight women and, by potential extension, women within the industry not represented in this research. Additionally, these women experienced challenging dynamics between family, friends, and workplace. These challenges often presented an insurmountable barrier and, for many of these eight female aviators, something had to give. Within the industry as a whole, women might not be entering the cockpit in larger numbers because of the prioritization of family needs and the creative approach required by an aviator with respect to family matter.

Conclusion

This thesis has approached several key questions; What characteristics do these women share that make them prone to adamantly pursuing a career in a male-dominated field? What

structural features made their endeavors more or less attainable? What challenges do these women face on a professional and personal level as a result of their career aspirations? How do female aviators experience the challenges of labor differently and similarly to each other and to their male counterparts? What might these interviews indicate are some of the reasons why there is a stagnation in the numbers of women entering the cockpit?

While all of the sections within this thesis aided in the final outcome of this research endeavor, certain sections more directly helped frame my understanding of these female aviators and their entrances into the airline industry. As was further explored in my literature review, the airline history section of this research endeavor captured the deregulation of the industry and what it meant for women entering the airlines in the era immediately following the passage of the Airline Deregulation Act of 1978. The literature review section of this thesis framed both the history into which the airline industry was situated as well as the family-workplace dynamic that challenges many women across numerous industries and, on a larger scale, underlines debates about the feminization of labor. The deregulation of the airline industry coincided with the acceptance of women into the cockpit and informed the environment in which they climbed through their ranks, it also coincided in time with new openings for women in flight, including participant in naval flight programs. This in turn informed their experiences as well as the trajectory of the industry as a whole. My interview data helped me understand both the structural barriers these women face as well as the personal barriers they experience. Structurally, although the airlines are perceived as gender-neutral in terms of pay-scale, training requirements, and hiring practices, this data section helped me understand the ways in which

the lack of attention the airlines dedicate to integrating women in the cockpit is itself a structural barrier. Additionally, the consistently low numbers of female aviators in turn disadvantages other women from pursuing that career choice.

With regards to the characteristics these eight women shared that fueled their endeavors in a male-dominated field, these female aviators all shared an intense drive and ambition for their line of work. Structurally, these ladies often faced more rigorous standards than their male counterparts but had the financial, emotional, and professional support that helped them persist. As female aviators, these women were historically subject to both minor and major examples of discrimination, a practice that has diminished but not altogether disappeared. Additionally, these women typically have to develop unique approaches to balancing family and career, or sacrifice certain components of their professional or personal lives for the sake of the other. With regards to how female pilots experience the challenges of the labor market differently or similarly to their male counterparts, there were no conclusive findings given that this research only incorporated eight successful women in the industry and not their male colleagues. Finally, the stagnation in percentages of women pursuing a career as a commercial pilot have remained relatively the same over the past thirty years, a trend that, among numerous other reasons, might be attributed to the challenging personal-professional balance required of an aviator, the financial and temporal training costs, and the lack of visible women already in the industry serving as role models for ambitious young ladies around the country.

Moving forward, this research has much room for expansion, particularly because there is very little existing research on this subject, but interest in women in STEM fields and high skilled jobs more generally is growing. There were several key features of this project that are fertile grounds for future researchers. For instance, rather than attempting to pursue a line of questioning that encompassed the entirety of these women's careers, I framed most of my inquiries from their entrance to the industry. This in turn gave me a more reasonable amount of data to work with and also allowed me to focus on the barriers to women just entering the industry rather than those imposed on women with twenty-five years' experience as a commercial aviator. Additionally, given that very little data currently exists on this subject, I would suggest continuing to conduct interview-based research. However, within the interview-based method that questions these women's entrances into the airline industry, there is still substantial room for expansion. A future researcher might expand the number of women with whom they talk or apply a similar methodology to other aviation minority blocks. Interviews might be conducted with women at more varied stages in their careers including those at very basic training levels and those that have left the field. If compelled, a researcher might also conduct interview-based research with men in the industry to gain their perspectives on the challenges they faced as well as their impressions of women in the industry. Ultimately, this research endeavor catalogued the experiences of eight women within the industry; although this represents a small block of female aviators, it represents a range of experiences and themes that are likely to permeate the stories of other women pilots.

Appendix

Background Information

Federal Aviation Administration

While most elements of the airline industry were federally deregulated in 1978, the safety oversight committee remains an aviation stronghold. Titled the Federal Aviation Administration or FAA, this entity is responsible for monitoring the continued safety standards of the industry. As their website states, the FAA's "continuing mission is to provide the safest, most efficient aerospace system in the world" (About FAA). Within the FAA's foundational principles is the responsibility to oversee the continued certification of pilots, mechanics, air traffic controllers, and federal check airman. The FAA must also certify new airlines, ensure the continued safety of these carriers, evaluate airport safety, determine the routine safety of aircraft, and any other number of safety-related responsibilities that fall onto the desks of persons working for this government entity. As indicated by their oversight purview, this particular branch of the flight world heavily influences commercial aviation. Pilots interact with Federal Aviation Administration officials with relative regularity and must meet the safety standards of this governing body.

Ranks within aviation

The airline industry delegates different ranks and responsibilities to its pilots. Within the cockpit, there have historically been three central roles: captain, first officer and flight engineer. While all three jobs typically require the same baseline qualifications, there are undoubtable

distinctions. Additionally, while the flight engineer was historically a vital part of the cockpit team, this position has become antiquated and unnecessary en lieu of the technological improvements within aircrafts.

Captain & First Officer

Typically, the Captain is the most senior person and most qualified pilot in the cockpit. They are also understood as the boss of the airplane. At a passenger airline level, both the First Officer and the Flight Engineer have pilot certifications. Likewise, the Captain has these same pilot certifications but has also undergone additional training. A Captain is usually a more tenured pilot with the Captain, having already served at least three years as a First Officer and potentially additional time as a flight engineer before transitioning to the responsibility of Captain. This role is, above all else, seen as an assumption of leadership and responsibility. Both the Captain and the First Officer are capable of flying the plane, communicating over the radio, following directions from Air Traffic Controllers, and maintaining a comfortable environment for their passengers; however, the Captain is ultimately responsible for everything that happens during a flight. This responsibility also comes with additional compensation, typically to the tune of roughly 50% more than the First Officer. The First Officer is the more junior pilot in the cockpit with fewer responsibilities but also less decision-making independence. For most pilots, the career trajectory promotes the eventual transition from the right seat to the left seat.

Flight Engineer

Margaret Bruce explained about the flight engineer, “In some of the early generation planes, you’d have the captain and the first officer and then there was a third one in there who was not always a pilot. Sometimes they’re mechanics. And that person ran all the systems. The fueling and the pressurization. All that was more mechanical in those days. The airplanes that you’d know of that had them are the 707 and the DC8 and the 727 and even earlier ones than that.” However, technological enhancements following the deregulation of the industry sparked the downsizing of the mechanical personnel needs within the cockpit. Weiner writes:

“it was clear by the end of the decade that the era of the flight engineer might soon be drawing to an end, even in wide-body aircraft, as the new two-pilot models replaced the old. What would replace his function in the cockpit? *Certainly* not an increase in workload for the two pilots who were already seriously loaded in the terminal environments. The answer the designers proposed was an increase in automation” (Wiener 1-2).

The 757 and 767 were retrofitted such that technology mitigated and subsequently eliminated the need for a flight engineer in the cockpit. Ultimately, flight engineers became practically obsolete with the retirement of the DC8, Boeing 727 and Boeing 747 aircrafts.

Military v. civilian

While more routes exist for entering the aviation industry than military and civilian, a fact we will explore later in this thesis, these two avenues are the most common means of becoming qualified as an aviator.

Military aviation indicates that someone entered the armed forces and climbed through the aviation ranks under the guidance and with the financial backing of the US Government. While all four branches of the military offer flight programs, the nature of these programs differ; therefore, the majority of commercial airline pilots whose aviation background was in the military either served in the U.S. Navy or the U.S. Air Force.

Alternatively, a civilian with no military aspirations can also earn their commercial aviation qualifications. To do this, one typically contacts a flight school based out of a small regional airport. Prospective pilots take lessons, gain air time, and climb through their certifications. Although not the only option, a civilian pilot will gain the bulk of his or her hours as an instructor. While the FAA mandates that a pilot employed by a “program manager or owner” must have 1,500 hours of flight time, a pilot hired with a regional airliner at this juncture in airline history typically has closer to 2,500 hours of flight time (91.1053). This civilian pilot can gain time and experience with a regional airliner before applying for a position working for a major airliner such as Delta, American Airlines, United, Southwest, etc. Upon hire with a major commercial airliner, the experiences of civilian pilots and military pilots are nearly identical.

Regional v. major model

A Mesa first officer on a 0 to 74 seat turboprop aircraft makes \$19.26 per hour for the duration of his or her first year with the airline. The FAA mandates that pilots are allowed to work a maximum of 1,000 hours per year. This means that a first year pilot on an aircraft meeting these conditions makes a maximum income of \$19,260 before taxes, Medicare, Medicaid, union fees, etc. Poverty level for a three-person household is defined as below \$19,790 per year and for a four-person household, the threshold is \$23,850 per year. This in turn indicates that a first officer with Mesa during his first year of employment with the company is living below the federally-recognized poverty level if the person has a family. Additionally, regional airliners hire pilots with fewer hours and less passenger experience than the major airliners. Regional airliners are perceived as a conduit from the training and instructing stages to employment with a major commercial airliner.

Employment with a major commercial airliner is seen as the end goal because of the increased compensation and the other employment benefits available to pilots with these larger companies. Pilots with major airliners such as American Airlines, Delta, Southwest, etc. are compensated much more fairly en lieu of the financially intensive nature of training for pilot positions, a component that will be discussed later in this thesis. For instance, a Captain at American Airlines on a Group III aircraft who has been with the company for twelve years and works the near-maximum 85 hours per month would make \$290,261 before taxes, Medicare, Medicaid, union fees, etc. While time spent at regional airliners is typically under-compensated and perceived as an opportunity to gain flight time and experience, major airliners such as

American Airlines do not encourage the same pilot dynamic. Rather, major commercial airliners reward seniority within the airline, thus promoting a pilot's long-term employment with a specific company.

Schedule setup

Flight schedules are frequently perceived by the general public as an enigma in the US workplace model. American industries employ a variety of work schedules and these same industries rely on an assortment of compensation strategies. Some fields are salary-based, other employment uses an hourly wage. Some employees work for commission and other industries motivate employees by offering bonuses. In an increasingly technological era, the historical forty-hour workweek in the office has become far-less pervasive. Likewise, the structure of airline schedules and compensation is unique.

First and foremost, airline schedules are subject to Federal Aviation Administration regulations and, in many ways, are guided by this agency's Code of Federal Regulation (CFR). The FAA mandates that pilots work a maximum of 1,400 hours in a calendar year and these standards are frequently made more rigorous by different commercial companies. For instance, American Airlines offers its line-holding pilots a maximum of 90 hours per month but an annual accepted total of only 1,000 hours. Additionally, pilots on reserve can work a maximum of 85 hours per month, still with only 1,000 hours permitted annually. Holding a line indicates that a pilot has a set schedule for the month. They have put in a bid in the scheduling system for the specific set of trips for which the pilot's on-the-job responsibilities cannot exceed 90 hours of engine-on

time. Alternatively, a pilot on reserve as the aviation equivalent of on call. If a line-holding pilot calls in sick, a mechanical delay causes a flight crew to exceed their permitted on-duty time, or numerous other reasons, a reserve pilot would be called in. According to the FAA's CFR, "*Reserve status* means that status in which a flight crewmember, by arrangement with the program manager: Holds himself or herself fit to fly to the extent that this is within the control of the flight crewmember; remains within a reasonable response time of the aircraft as agreed between the flight crewmember and the program manager; and maintains a ready means whereby the flight crewmember may be contacted by the program manager. Reserve status is not part of any duty period or rest period." (91.1057)

Consent Sheet

Consent to participate: Honor's Thesis with the Geography Department

Project Title: Women In Aviation

Researcher: Molly Bruce

Faculty Sponsor: Professor Elizabeth Olson, UNC-Chapel Hill

Introduction:

You are being asked to take part in an oral history research study being conducted by Molly Bruce for an Honor's Thesis under the supervision of Professor Elizabeth Olson in the Department of Geography at UNC-Chapel Hill. We greatly appreciate your help!

According to the Oral History Association, "oral history is a method of gathering and preserving historical information through recorded interviews with participants in past events and ways of life." You have been approached for an interview because, via Margaret Bruce or another female associated with the aviation industry, I have learned of your compelling experience as a woman in a male-dominated industry. This is an experience that particularly interests me and something I would like us to talk about.

Purpose:

The goal of this oral history project is to learn about individual's experiences and encounters with gender and aviation over her lifetime.

Procedures:

The interview will take between 30 minutes and one hour (though sometimes they can be longer). During the interview you will be asked questions about your life, your entrance into the aviation industry, how that industry has shaped you, the ways it has coincided with your personal life, and the ways in which your gender has shaped your profession. The interview will be audio-taped and transcribed. The results of your interview will be used for an Honor's Thesis to be completed by March 2016.

Risks/Benefits:

The anticipated risks for participating are minimal, though it is possible that your story will include difficult issues or memories. You are able to stop the interview at any time if you become too uncomfortable.

Voluntary Participation:

Your participation in this interview is voluntary. Even if you decide to participate, you may withdraw from the interview without penalty, or request confidentiality, at any point during the interview. You may also choose not to answer specific questions or discuss certain subjects during the interview, or to ask that portions of our discussion or your responses not be recorded on tape. You can also ask that portions of the interview be omitted from audio and/or written outputs immediately following the conclusion of the interview.

Confidentiality:

We are requesting permission for use of a) the audio recording, and b) the transcript of your oral history. These will be used for Thesis purposes only. We are asking your permission to be

identified by name in the transcript, interview, and Thesis outputs (presentation and written report).

It is possible that details you provide in your oral history will be identifiable to people who know you. We therefore cannot guarantee anonymity. However, we can offer confidentiality by not identifying your name and not playing the audio files.

Contacts and Questions:

If you have any questions about this research project or interview, feel free to contact Molly Bruce at mbruce@live.unc.edu.

Statement of Consent:

I agree to participate in this oral history interview, and to the use of this interview as described above:

_____ I agree to be identified by name in any transcript or reference to the information contained in this interview.

_____ I agree for the audio recording to be used for the creation of the Honor's Thesis.

_____ I agree for the transcript of the interview to be used for the creation of the Honor's Thesis.

_____ I agree for any images that I provide or offer to be used in the creation of the Honor's Thesis.

OR

___ I wish to remain anonymous in any transcript or reference to the information contained in this interview. I do not want the audio recording to be played for transcription or presentation purposes.

OR

___ I wish to remain anonymous in any transcript or written document, but I agree for the audio recording to be used in the creation of the Honor's Thesis.

Participant's Signature

Date

Researcher's Signature

Date

Interviewee Informational Chart

Name	Year Hired	Major Hiring Company	Current Company
Lucy Young	1976	U.S. Navy	American Airlines
Valerie Wells	1978	Piedmont Airlines	American Airlines
Marilyn Koon	1978	Air National Guard	American Airlines
Dianna Applegate	1983	Piedmont Airlines	American Airlines (retired)
Margaret Bruce	1984	Piedmont Airlines	American Airlines
Karen Ruth	1985	Republic Airlines	Delta Air Lines
Helen Anderson	1999	US Airways	American Airlines
Carrie Peterson	2008	United Airlines	American Airlines

Bibliography

About FAA. (2016, April 21). Retrieved from <https://www.faa.gov/about/>

FAA Regulations. (2014, June 30). Retrieved from

https://www.faa.gov/regulations_policies/faa_regulations/

[FAA Civil Airmen Statistics]. (2015, January). Unpublished raw data.

Levine, M. (1987). *Airline competition in deregulated markets: Theory, firm strategy and public policy* (Vol. 3, pp. 393-494). New Haven, CT: Yale Journal on Regulation.

Mitchell, J. (2012, December 4). Women Notch Progress. Retrieved November 15, 2015, from <http://www.wsj.com/articles/SB10001424127887323717004578159433220839020>

Wiener, E. L. (1989). *Human factors of advanced technology (" glass cockpit") transport aircraft*

(Vol. 177528). NASA Ames Research Center.

Airline Deregulation Act 1978 95th Cong., For sale by the Supt. of Docs., U.S. Govt. Print. Off.

(1978) (enacted).