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**THE ECONOMIC AND SOCIAL DECLINE OF WOMEN'S COLLEGES ACROSS THE
UNITED STATES**

by

ALEXANDRA RIVASPLATA

**SUBMITTED TO SCRIPPS COLLEGE IN PARTIAL FULFILLMENT OF THE
DEGREE OF BACHELOR OF ARTS**

**PROFESSOR ROBERTO PEDACE
PROFESSOR BARBARA JUNISBAI**

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Abstract

Women have been attending college at a greater rate than men for several decades. However, women's colleges have been shutting down or transitioning to coeducation at incredibly high rates. Literature demonstrates the importance of women's colleges due to their benefits on students' future career success and psychological wellbeing. However, there is less research concerning the decline of women's colleges, and none regarding the economic and quantitative factors influencing their closures. Using a newly constructed, completely original data set, I perform a logistic regression and analyze variables related to the survival of women's colleges. I find a high statistical significance of an institution's year of establishment, particularly during the Progressive Era. I also determine there is moderate statistical significance for colleges located near metropolitan counties. I then discuss the cases of Judson College, Vassar College, and Wellesley College, as examples of an institution that shut down, an institution that turned coeducational, and an institution that remained a women's college, respectively. I conclude with predictions for the future of women's colleges and the necessity for investment in them.

Acknowledgements

I would like to thank my readers Professor Pedace and Professor Junisbai for their endless encouragement, advice, and guidance throughout this academic venture. Without both of their patience and understanding, this paper would not exist! To Professor Pedace, you gave me the push I needed to become an economics major in the first place, and I cannot thank you enough for that. To Professor Junisbai, you embody all that is light and good in people. Everyone you have ever taught is forever indebted to you and your wisdom. Professor Kacher and Professor Flynn were also integral to the completion of this thesis and contributed so much. I am grateful for you all!

My friends here at Scripps, I could not imagine my life without each of you. You are the most inspiring, confident, intelligent, and kind group of people I have ever had the privilege of meeting. Thank you for your warmth and compassion. I cannot wait to watch you all accomplish unbelievable things.

To my amazing parents, who gave me the greatest gift of all when they allowed me to attend Scripps College. My mother, who is the strongest and most brilliant person in the world. My father, who has always been there to support me. I would not be where I am or who I am without both of your unconditional love and care. My dreams of reading and learning come from you both; I only hope that this thesis honors the work ethic, curiosity, and passion that you have each instilled in me.

This thesis is affectionately dedicated to my beautiful younger sister, Sophie. You are the most amazing person I have, or ever will, know. May you continue to conquer the world.

To all the teachers I have had the gift of learning from, you are changing lives every day.

Table of Contents

I.	Introduction and Research Questions	4
II.	Historical and Sociological Timeline of Education Access	7
III.	Literature Review.....	17
IV.	Data.....	22
A.	Data Collection	22
VI.	Results	29
A.	Regressions.....	29
VII.	Case Studies	36
A.	Closure Case Study: Judson College	37
B.	Coeducation Case Study: Vassar College	39
C.	Successful Case Study: Wellesley College.....	41
D.	Regression Results in Relation to Case Studies	45
VIII.	Discussion.....	46
A.	Drawbacks.....	46
B.	Predictions.....	47
C.	Investment.....	48
IX.	Conclusions	49
X.	References	51
XI.	Appendix I List of Colleges - Active Women's Colleges identified in bold	57
XII.	Appendix II	59

I. Introduction and Research Questions

Despite the remarkable achievements of women's college graduates, the United States has witnessed the rise and fall of women's colleges. The number of women's colleges has decreased dramatically over the past 60 years, from a potential peak of 280 to a dismal 29¹ left today many of which have endured persistent financial struggles. The purpose of this paper is to provide some context for the rapid shutdown of women's colleges and determine the largest obstacles they face. Are these closures coming from the hands of those wishing to keep women subordinate, or is the problem perpetuated by potential women's college students themselves, who might choose coeducational institutions due to neglect and a lack of awareness?

To understand the challenges facing women's colleges, my research focuses on the following interrelated questions: (1) What are the economic/financial profiles of successful women's colleges? (2) Are there quantifiable differences between the women's colleges that have shut down and those that have transitioned to coeducational institutions? (3) Are there greater macroeconomic factors that have affected the rapid decrease of women's colleges? (4) How can sociological and historical contexts explain this decline and is there anything that can be done in the future to save the institutions we still have?

I strongly believe these questions are important to answer because the education of future female leaders needs greater investment. Scholars have suggested that women's colleges challenge male hegemony in a way that is distinct from coeducational universities. Women's colleges also, on average, enroll 13 percent more students of color and 11 percent more low-

¹ A list of these colleges can be found in Appendix I. Assumption College for Sisters (NJ), and Mount Sacred Heart College (CT) are excluded due to them solely providing theological education for the purpose of religious vocations. Colleges in which endowments are shared with coordinate male-colleges are also excluded, such as Stern College for Women at Yeshiva University (NY), The Women's College of Brenau University (GA), and The Women's Institute at Russell Sage College: Albany and Troy (NY). Public colleges and junior colleges are also excluded.

income students than similar co-ed schools (Shugerman 2021). Women's colleges² in the United States have long been criticized for their apparent lack of academic rigor and based on stereotypes about their student populations. However, more recently, the women's colleges that remain are finally being recognized for their ability to offer a transformative experience to their attendees by creating a competitive academic environment that fosters self-confidence and a strong community. Alumni of these colleges include some of the most successful figures in politics, literature, and art: Hillary Clinton (Wellesley College), Sylvia Plath (Smith College), Emily Dickinson (Mt. Holyoke College), Alice Walker (Spelman College), and Stacey Abrams (Spelman College), among others (Colangelo 2015). Students at women's colleges are more likely to major in STEM fields, serve in leadership roles within their college community, earn graduate degrees, and hold corporate leadership positions. In fact, Jane Addams (the first woman to receive the Nobel Peace Prize) and Katherine Graham (the first woman to be named CEO of a Fortune 500 company, The Washington Post Company), were both women's college graduates, attending Rockford Female Seminary and Vassar College respectively (Wofford 2013). There is an abiding necessity for women's colleges, and I will utilize statistics and econometrics to attach quantitative proof to this argument.

I was inspired to analyze women's colleges because of my own experience at Scripps College, which provided me the chance to learn and grow in a supportive academic space with powerful role models, giving me self-confidence, knowledge, and purpose. There is also a large gap in empirical research, especially involving quantitative analysis, on the topic of women's

² I define women's colleges as colleges whose current undergraduate student population is 90%+ female-identifying, or at one point was described as solely for female students. As conversations become more inclusive, many colleges have adopted policies to accommodate for transgender students, and these schools are still included in the current data as women's colleges. Former women's colleges that have transitioned to be fully coeducational are separate and used as comparison. I want to acknowledge the limits that my statistical studies based on single-sex institutions data may have on progressive gender identity discourse since they may perpetuate the erasure of non-binary and intersex perspectives, but for the purposes of regressions and statistical analysis, I must use binary variables and language.

colleges. Though literature and statistics tell us women's colleges are impactful, scholars have neither discussed reasons for their closures nor attempts to prevent them. My aim is to contribute more information regarding the future of women's colleges and how they can evolve while maintaining their specialty, transforming their students' lives. I will expand upon existing scholarship with a focus on closures during the 1960s onward. Existing research on this topic determines that social movements and the substantial investment in public colleges drove the first major decline in the number of women's colleges (Harwarth 1997). My work evaluates why, in the aftermath of large cultural changes, women's colleges continue to decrease in enrollment and popularity (Gross 2015). Are women's colleges doomed to becoming obsolete, or is there something that can be done about it?

My thesis is structured as follows. I first will introduce historical background on women's education and perform a critical review of existing literature, noting that there is a unique angle to my work in terms of its combination of organizational and economic analysis. I relate macroeconomic changes across the US to the timeline of women's educational history. Then, I utilize econometric analysis to measure the statistical significance of various organizational factors exhibited by existing women's colleges that could potentially relate to school survival. I incorporate a spatial economics lens, investigating the relationship between closures of colleges to their states, proximity to metropolitan cities, labor-force participation rates, and county unemployment rate in a logistic regression. Throughout, I establish a general profile for a successful women's college and identify specific traits that have contributed to keeping some colleges open and shutting others down. I conduct three case studies on different women's colleges as a complement to my regression and lastly, discuss my predictions and conclusions.

II. Historical and Sociological Timeline of Education Access

The first women's colleges were established after years of female students being excluded and gate-kept from male institutions. Matthew Vassar founded Vassar College in 1861 to provide his niece, Lydia Booth, the chance to receive a competitive and valuable higher education after she had voiced her frustration regarding the neglect of women's educational opportunities. Vassar stated, "it occurred to me that woman, having received from her creator the same intellectual constitution as man, has the same right as man to intellectual culture and development" (Vassar Encyclopedia). Smith College was founded in 1871 using the estate Sophie Smith inherited from her father. While founding the college, Smith articulated, "It is my wish that the institution be so conducted, that during all coming time it shall do the most good to the greatest number [of women]. I would have it a perennial blessing to the country and the world" (Levine 2015). Spelman College was founded in a church basement in 1881 by Frank Quarles, the pastor of Atlanta's Friendship Baptist Church, in tandem with schoolteachers Sophia B. Packard and Harriet E. Giles. Once they gained monetary support from the Woman's American Baptist Home Mission Society, the Atlanta Baptist Female Seminary, and the First Baptist Church of Medford, Massachusetts, the founders embarked on their mission to provide quality education to Black women and girls. Ten students, including those formerly enslaved, constituted the first student body (Spencer 2016). These examples show the various ways women's colleges began in the United States, and each of them has its own unique story.

Advocating for the founding of women's colleges was incredibly risky, especially in the mid to late 1800s, when many thought educating women would "destroy American womanhood and the fabric of the American family, and that studying could lead women to infertility or insanity" (Levine 2015). But even before women's colleges were founded, women had to push

back against limited primary and secondary education access and thousands of years of negative opinion regarding whether it was wise, necessary, or even safe to educate them. As Dollie Boyd, Tusculum University's director of museums notes, "From ancient Greece and Rome forward, male pundits frequently equated educating women to releasing some form of evil upon the world" (Boyd 2019). Societal norms had long suggested that domestic subjects such as sewing, and cooking were all that women needed to adequately prepare themselves for their natural roles as wives and mothers. Women who were lucky enough to attend schools were only able to do so for theological reasons. Earning a degree of the same quality and content as a man was unheard of, and attending the more prestigious institutions that men accessed, such as the Ivy League, was impossible.

The history of women's higher education is a long and complicated one. In pre-Revolutionary America, women had an estimated literacy rate of one-half that of men, but by 1850, women equated men in literacy skills because of the existence of seminaries³ (Sklar 1979). Seminaries were the easiest way for women to receive an education and they would eventually evolve into some of the first women's colleges; Mount Holyoke and Young Ladies Seminary (later known as Mills College) are a couple of examples of this phenomenon (Chamberlain 1988). The Female Seminary Movement began around 1815 but it was between the 1820s and 1850s when curriculum covered more than basic literacy and girls were attending school beyond age twelve (Green 1978).⁴ In the mid-nineteenth century, "finishing schools," were the norm and were meant to teach women from wealthy families (especially on the East Coast), about issues of

³ Meant to provide theological education such as for priests and ministers.

⁴ For more about this time period, I would recommend reading *Alma Mater: Design and Experience in the Women's Colleges from Their Nineteenth-century Beginnings to the 1930s* by Helen Horowitz, *Women's Education Begins: The Rise of Women's Colleges* by Louise Boas, and *The Female Seminary Movement* by Leonard I. Sweet. Seminaries were integral to women's first opportunities for employment: teaching. Read more from the History of American Women

domesticity and social graces. Society encouraged women to hide their intellectual prowess for fear of frightening away potential suitors. About 50 women's colleges [were] founded between 1836 and 1875, [but] most were unable to develop financial or organizational resources, or academic programs of high quality” (Women’s College Coalition 2008). As one historian observed: "Generally, these colleges offered courses of study above the standard of those given at female seminaries but below those of colleges for men" (Harwarth 1997).

In the later nineteenth century, there was a rise in coordinate colleges,⁵ commonly known as “sister schools” to men’s institutions, which assisted in the education of women under a “separate but equal” ideology. Not long after coordinate colleges were founded did we see an increase in scholarly-focused women’s colleges such as Wellesley, and the other “Seven Sisters.”⁶ The Seven Sisters were officially established in 1915 when four colleges—Vassar, Wellesley, Smith, and Mount Holyoke—were called together by Vassar President Henry Noble MacCracken, in an attempt to work together “to deliver women opportunities for higher education that would improve the quality of life for the human family and that would put them on an equal footing with men in a democracy that was about to offer them the vote” (Vassar Encyclopedia). The Seven Sisters later included Bryn Mawr, Barnard, and Radcliffe.⁷ Beyond the Seven Sisters, coordinate colleges were established across the US (though mostly in the south and on the east), and many of these partnerships managed to boost the development of women’s higher education. Some examples of such partnerships included Hobart and William Smith

⁵ Coordinate colleges are meant to directly link a women’s college to a men’s college but keeps education gender segregated. Some examples include Radcliffe or Barnard (which were coordinate colleges of Harvard and Columbia University, respectively).

⁶ “Seven Sisters” refers to seven Northeastern liberal arts historically women’s colleges: Vassar College (now coeducational), Smith College, Wellesley College, Bryn Mawr College, Barnard College, Mt. Holyoke College, and Radcliffe College (which has now become a graduate research institute and no longer gives undergraduate degrees).

⁷ *Peculiar Institutions* by Elaine Kendall specifically provides some historical context for the Seven Sisters and the sociology of the beginnings of women’s colleges. Archaic social codes were fought across the seven sisters and there were many discussions on smoking, sex, and curfews.

College (New York), H. Sophie Newcomb Memorial College coordinate of Tulane University (Louisiana), Pembroke and Brown University (Rhode Island), and Evelyn College for Women coordinate of Princeton University (New Jersey). On the West Coast, coordinate colleges were not as popular, (however population density was significantly less)⁸ and less populated areas couldn't financially support two colleges. Regardless, several women's colleges were founded in the West even in the twentieth century, including Scripps College, Pitzer College, and San Francisco College for Women, but there were significantly less due to population density. Sadly, only two of those remain women's colleges today.

Many of the preparatory secondary schools and finishing schools founded decades earlier eventually transitioned to a liberal arts educational emphasis when they began offering bachelor's degrees (Time Magazine 1942). "In place of the liberal arts finishing school image that was once synonymous with women's colleges is a new emphasis on career and professional training." President of Mary Baldwin, Virginia Lester stated, "Women have changed. If you're still doing things the way you did 20 years ago, you're not serving women. We had to dispel the southern finishing school image" (Washington Post 1985). Finally, formerly men's colleges and formerly women's colleges opened their admissions just as federal investment into public education increased. Now, 97% of colleges in the US are coeducational (Goldin & Katz).

The Great Depression (1929-1939) halted some progress made regarding women's education because of the greater financial burden on private colleges. There were only a handful of public women's colleges, such as Texas Woman's University (which was founded in 1901 and is now coeducational). The economy was failing, which precipitated a rise in unemployment, causing most men to be considered poor candidates for marriage. This phenomenon is studied by

⁸ In 1915 California had a population of 3 million while New York had 9.7 million. According to the New York Times, it wasn't till 1964 that California surpassed New York in population.

Mathew Hill in, *Love in the Time of the Depression* which confirmed, “Marriage rates fell by 20 percent from 1929 to 1933.” Women in the Great Depression Era were interviewed, saying, “The boys have no jobs,” and “I want a man with a job” (Hill 2015). This dilemma led women to grow more concerned about their own education and how they could financially support themselves, so they began to explore educational opportunities that could be practical for future careers and jobs.

A couple of decades later, during the Second World War, educational progress was stunted again due to lack of funding, “much of the budget reserved for schools was redirected to support the Allied war effort. Both teachers and youth left the classroom to enlist. Dropouts became common, and school enrollments declined even further. High school enrollments were down from 6.7 million in 1941 to 5.5 million [and] by 1944, only two thirds of the pre-war teaching force was still teaching” (Lynch 2016). American Council on Education's President George Zook once said: “It is clear that women students cannot expect to pursue college as usual while their brothers and male friends are rushed off...Courses for women are going to be shortened and they are going to be directed toward preparation for specific types of war service.” Post-World War II, the Servicemen's Readjustment Act of 1944 (commonly known as the G.I. Bill) was passed during President Franklin Delano Roosevelt's third term and provided World War II's veterans increased college education opportunities.⁹

Another significant change during the progressive education movement that contributed to a decline in women's colleges was second-wave feminism during the 1960s and 70s, which

⁹ This time period though extremely influential is beyond the scope of my research, see for more on the impact WW2 had on education from Carr and Mallam's *Effects of the World War on American Education, Great Depression and the Rise of Female Employment: A New Hypothesis* by Bellou and Cardia, and Chapter 9 of *In the Company of Educated Women: A History of Women and Higher Education in America* by Barbara Miller Solomon. I would also recommend reading about the GI Bill further (see Keith Olson's *The G. I. Bill and Higher Education: Success and Surprise*) as many men's colleges opened due to this bill, including Claremont McKenna College.

played an influential part in the fight for coeducational colleges and reduced the popularity of single-sex institutions. Social movements such as the Civil Rights Movement, anti-Vietnam War protests, Gay Liberation, and the Sexual Revolution profoundly impacted higher education by creating a cultural mood calling for equality between genders and races. Critics that were threatened by these liberal movements charged that women's colleges made their students sexually and politically radical. Women's colleges were seen as places that "unsexed" women and made them more like men by ignoring their fundamental duty to marry and have children. They also thought women's colleges encouraged students to adopt "extreme" political opinions, such as socialism, communism, and...women's rights (Miller-Bernal, 2004). At the heart of the debate regarding the curriculum of women's colleges, was the larger question of what the purpose of women's higher education was. Was it preparing women for their traditional roles as wives and mothers, or was its goal to fundamentally reshape women's place in society by encouraging women to eschew their traditional roles? A Louis Harris poll in 1972 showed 71 percent of American women at the time believed "if women don't speak up for themselves and confront men on their real problems, nothing will be done." (Deckard 1979).

A couple of other timely changes occurred after the war including the Equal Pay Act of 1963, the Higher Education Act of 1965, increased access to birth control (which became readily available in 1970), and the introduction of Title IX. President John F. Kennedy (as proposed by Esther Peterson who was the head of the Women's Bureau at the Department of Labor) created a Presidential Commission on the Status of Women in December 1961. In 1963, based on the results of this commission report, Kennedy issued an Executive Order on equal opportunity in employment and signed the Equal Pay Act into law which, "prohibited discrimination on account of sex in the payment of wages by employers." This law relates to the issue of women's colleges

because it postponed the timeline of women becoming pregnant and raising children, a trend that birth control further encouraged. Women having more time before starting their family allowed them to pursue education and plan more easily for their careers, increasing women's college enrollments. Women could finally make human capital investments for themselves and improve their financial status, allowing them to go to school in preparation for long-term work.

Title IX was part of the education amendments and guaranteed the right to education free from sex discrimination. This, along with the Higher Education Act,¹⁰ increased female education access, creating the setting for the phenomenon we see now: women enrolling in college in higher numbers than men. And while, in general, we are seeing more women in higher education overall, enrollment at women's colleges has since declined. Gender desegregation has meant that women's colleges no longer provide the sole or primary access to higher education. Public colleges also expanded dramatically to meet the increased demand.¹¹ Higher education enrollment increased by 49 percent in the 1950s and 120 percent in 1960s (Snyder 1993). "No longer were private four-year colleges the primary venue for students as in the pre-war years, with 74 percent of students attending public institutions by the end of the 1960s." (Harwarth 1997).

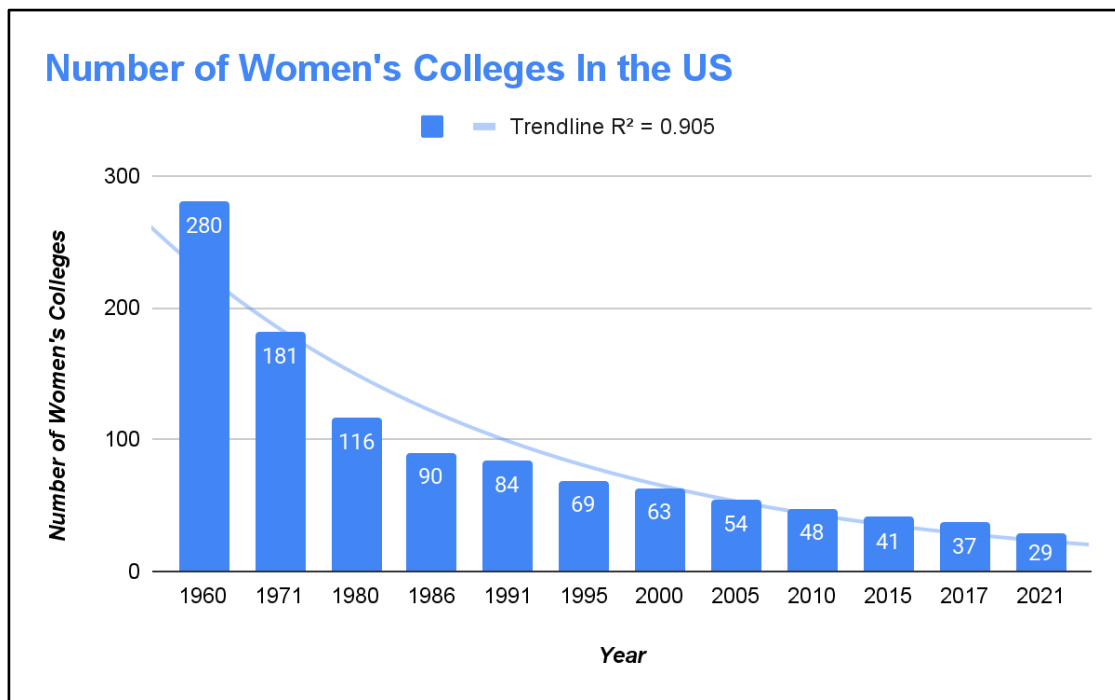
With women's colleges' enrollment declining, many have needed to transition to coeducation or shut down completely, bringing us to today's plight (see Figure 1.1 below). I have graphed the exponential decrease of women's college shutdowns since the estimated peak of 280 in the 1960s. Though the exact numbers have been disputed, historians have stated, "Between June 1968 and October 1968...64 women's colleges went coeducational or closed their

¹⁰ Read more about the history of the Higher Education Act from the National Education Association or the Pell Institute

¹¹ For more on the development of public institutions see: *The Great American University: Its Rise to Preeminence, Its Indispensable National Role, Why It Must Be Protected* by Jonathan Cole

doors” and “there were [approximately] 233 women's colleges in [late] 1960 and that only 90 remained in 1986.” This equates to a 62% shutdown rate. Women were finding new avenues of access to higher education for many reasons, including the establishment of many new 2-year public colleges in the 1960s and 1970s and the fact that many prestigious men's colleges also opened their doors to women during this time. Former President of Vassar, Sarah Blanding, predicted at an alumna gathering in 1961 that, “of the hundred or more women’s colleges now in existence, no more than ten will be functioning in the year 2061,” the current rate of closure occurrence could very well confirm her prediction (Miller-Bernal 2006).

Figure 1.1



The following percent decrease values each point are:

1960-70 = 35%, 1970-80 = 30% 1980-90 = 22.4%, 1990-2000 = 25%, 2000-10 = 24%, 2010-2021 = 40%

The explicitly stated goal of women’s colleges was to be a comparable option to the finest men’s colleges in the nation. Yet, no matter how elite a women’s college was, it could

never be viewed as equal because of their specific focus on women. Their reason for existing was inherently to provide women opportunities they were denied among the Ivy League institutions but were seen as second-best. As stated in the Springfield Republican, “no college exclusively for girls will have, for many years to come, a standard of intellectual vigor and practical result so high as that of the best existing colleges - partly because the demand will not be so exacting. With all its excellencies, Vassar falls short of Cornell and Yale and Harvard, and must do so for a long time, and the new Smith College will mainly repeat the experience of Vassar” (Springfield Republican 1870). Why did these colleges fall short? Some critics said the male “aura of ambition” was simply stronger than women’s, “the atmosphere, the *aura* of aspiration, is not and cannot be the same in the college for women as in that for men...The positive conditions are prominently social — the contacts with each other and with their eminent teachers of young men moved by the same masculine aspiration and having the same outlook upon the world, an outlook in which young women cannot participate” (William Dean Howells in Harper's Monthly Magazine 1903). This kind of thinking prevents us from broadening the scope of what should be valued in colleges, and why “masculine” auras and qualities are considered stronger and better. Women’s colleges are not meant to be the same as other institutions; perhaps they offer something different, yet important, on their own.

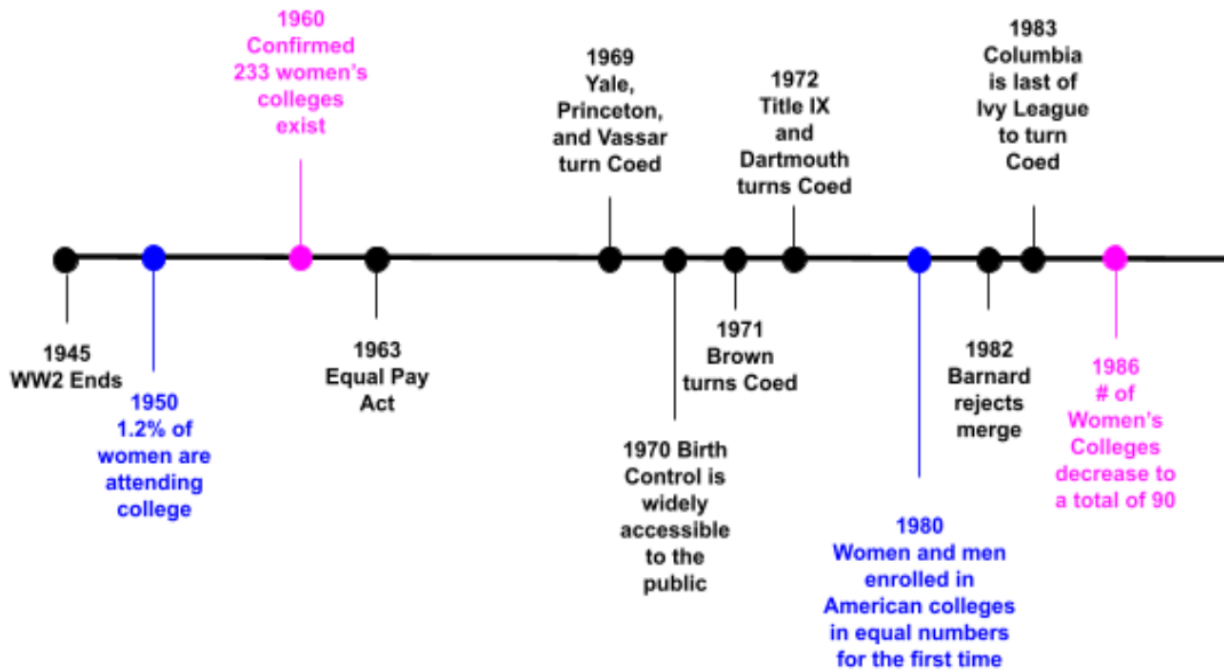
When elite male colleges opened their doors to women throughout the late 1960s, women’s colleges had a dilemma that threatened their existence and had to find alternative means to remain open. Male college students were the most resistant to recognizing any claims to equality of women’s colleges. Henry Noble MacCracken, Vassar’s president from 1915-1946, found in his early attempts at public relations for the college that “American men were entirely indifferent to the idea of equality of the intellect. College women were therefore freaks, amusing

when not charming” (Vassar Encyclopedia). When Vassar women challenged Princeton to a debate competition in 1916, the notion of competing against women was ridiculed in the Daily Princetonian “Why not a knitting or sewing tilt with Bryn Mawr? Why not a pingpong match with Barnard, or a spelling-bee with Wellesley, or a tea-pouring contest with Miss So-and-So’s finishing school? Or even better, why not take on the International Correspondence School for a heated skirmish in penmanship?” (New York Times).¹² Many of the most famous women’s colleges such as Bryn Mawr, Radcliffe, Barnard, and Vassar dealt with these challenges by taking advantage of their location and proximity to other institutions. They began affiliating themselves with Haverford, Harvard, and Columbia respectively, and Vassar began admitting men in 1968. In Figure 1.2 I have indicated major changes in federal law and college policy¹³ to represent the timeline in which these events were occurring and the corresponding decline of women’s colleges in response to this.

¹² Five years later, in its first coeducational debate, Princeton lost to Vassar on April 25, 1924.

¹³ For more about Ivy League colleges turning coeducational I would encourage reading *Keep the Damned Women Out: A Struggle for Coeducation* by Nancy Weiss Malkiel.

Figure 1.2



III. Literature Review

What sets my research apart from prior studies is that I am looking into *why* women's colleges have needed to close and *what* factors contribute to these closures. I want to know what gets colleges to the point that they must turn to coeducation or shut down. Some of the most relevant research conducted by other scholars has focused on the history of women's colleges, why they needed to open, and the effects that transitioning to coeducation has had on students. Because of their work, we know about the benefits of single-sex education, how it can change women's lives and what coeducational institutions should implement into their mission statements and other aspects of their campus culture to better accommodate students' needs. We know less about recent closures and nearly nothing regarding economic contributions/causes. Moreover, my thesis adds to the conversation through use of quantitative analysis, which is

crucial to helping prevent further women's colleges from shutting down. To mitigate against future closures, we first must understand the factors that have caused them to do so in the past.

One piece that focuses on why women's colleges are beneficial is *Separate by Degree: Women Students' Experiences in Single-Sex and Coeducational Colleges*, written by Leslie Miller-Bernall. Miller-Bernall compares the post-graduate futures of various alumni of Wells (a women's college at the time) and William Smith (a coordinate college to Hobart) in comparison to Middlebury and Hamilton (which were both previously men's colleges). She provides great insight into the improvement in self-esteem students feel after attending a women's higher education institution through their ability to provide women a chance to develop leadership and skills in a variety of academic disciplines. She expands on the institutional examples from her earlier work and discusses surveys and statistics of former students in terms of their lives post-graduation. She asks whether students still hoped to marry, have children, and/or work. She asks about women's opinions on gender-roles, their preparation for entering the workforce, if they felt prepared to combat sexism, and their overall satisfaction with their education, among other questions. She concludes that only 7% of alumnae would have chosen to not attend their single-sex colleges. She also finds that despite the financial and enrollment struggles that Wells had continuously faced at the time, that most alumni defended their choice to attend with vigor and gained numerous benefits from their time there.

Another way of learning historical background was from Chapter Six in *Women in Academe: Progress and Prospects* by Mariam K. Chamberlain is specifically dedicated to women's colleges. Chamberlain delves deep into the history of women's colleges, pioneers such as the Seven Sisters, Catholic women's institutions, historically black women's colleges, and the purposes and historical background that explains the need for each of them. She touches upon the

vocational education movement, progressive education movement, and second wave feminism and how all are linked to the developmental journey of women's colleges. Chamberlain also talked about women's colleges that chose to become coeducational, but also of those that managed to remain single sex in and how they reevaluated their institutional missions. Like Miller-Bernall, Chamberlain talks about how these colleges added new programs and tried to appeal to students above the traditional college age as a way of restructuring while still supporting their original mission as women's colleges. Many women's colleges are still falling victim to the changing times, those that have survived have adapted themselves to best prepare women to meet the new challenges that they face in American society today.

Women's Colleges in the United States: History, Issues, & Challenges, by Irene Harwarth, Elizabeth DeBra, and Mindi Maline, further discusses the importance of women's colleges and their appeal over the years. "Yet many young women continue to select women's colleges because of their rich traditional heritage of serving the educational needs of women. Women's colleges have a history of offering access, excellence, and equal opportunities in higher education. This volume offers insights into the continuing significant role of women's colleges in higher education." Harwarth et al. also divided the history of women's colleges, similarly to my own timeline, and pointed out issues that contributed to different decisions that colleges made. Like my own work, Harwarth discussed examples of colleges that stayed open and those that chose to go coeducational. She traced how some elite institutions dealt, in their various ways, with the tidal change that brought coeducation to campus. But exactly what caused that shift in the 1960s remains largely unexplored and unexplained.

My thesis is also informed by Avery Calkins, Ariel Binder, Dana Shaat, and Brenden Timpe's working paper, *When Sarah Meets Lawrence: The Effect of Coeducation on Women's*

Major Choices. Their research utilized the currently provided information on institutional characteristics that may be related to women's choice of field and an institution's capacity to produce STEM majors. Like myself, these researchers had to collect their data by hand, as there is no current list of women's colleges. In addition, there is unreported/missing data about general higher education prior to the 1980s. I utilized the data set that Calkins and her team conducted research on and added to it by cross-referencing with other sources. The paper provided some information about the process that ensues when a single-sex institution considers coeducation. Calkins and others state that transitioning to coeducation occurs very quickly once the Board of Trustees agrees that doing so would bring beneficial results. Men have been able to enroll as early as the following academic year and they have access to the full range of course catalogue. Their statistics state that women's college graduates are less likely to major in STEM once the school becomes coeducational than before it transitioned. Their evidence showed how an influx of men led to a persistent decrease in the share of women majoring in each field. Women were 0.9 percentage points less likely to major in biology, 0.3 percentage points less likely to major in physical sciences, 0.5 percentage points less likely to major in math, and 0.7 percentage points less likely to choose economics. This was incredibly eye-opening to me, and only further fueled my desire to study what shuts down a women's college.

Another piece by Leslie Miller-Bernall in *Challenged by Coeducation*, and co-written with Susan Paulson states that, "[w]omen's colleges are an endangered species" (2006). Miller-Bernall and Paulson include five case studies of former women's colleges that have either closed or become coeducational, four case studies of women's colleges that have remained single-sex¹⁴, and two case studies of coordinate colleges. They use these various case studies to conduct a

¹⁴ This book was published in 2006, since then, Mills College (one of the single-sex examples) has been forced to merge with Northeastern and thus is no longer a women's college.

critical review and discuss adaptations that women's colleges should implement if they are transitioning to coeducation. Unlike my previous sources, rather than focusing on the fight to save women's colleges, they discuss how to adapt as a former women's college to still prioritize women's educational experiences in a coeducational environment. Such factors include location, history, and wealth, and how they influence the adaptations that can be made. In their conclusion, the authors point towards female role models, female iconography, gender-studies requirements, etc. as examples of what women's colleges uniquely do right. These are the factors that should be emphasized if and when some of these colleges undergo a coeducational transition: emphasizing the former all-female history, investing in facilities to be used by women, and other such efforts, help ensure that an institution keeps gender equity issues in mind in their new programs and policies.

All these sources contributed to my work by providing historical and sociological context of women's colleges. They also allowed for this conversation to exist, by analyzing the benefits of women's colleges and conducting their own studies about what women's colleges have provided us with, and what coeducational institutions can learn from them.

Economic publications and journals were more difficult to discover, however studies regarding liberal arts education as a whole, did provide insight regarding potential changes that might be made in the future as colleges attempt to increase their longevity. Catharine B. Hill & Elizabeth Davidson Pisacreta's, *Economic Benefits and Costs of Liberal Arts Education*, evaluates new research on students' earnings, choice of major, and occupation to calculate returns to different types of higher education investments and prospective impact on future earnings. Variables they included in their analysis were, "students' family incomes and individual earnings at age 34." They concluded that higher lifetime earnings increase the return

to any given investment in attaining a higher education degree, but the actual return depends on the size of the investment, or the costs. For liberal arts colleges, the data suggests earnings income were high but not as strong as equally selective private institutions. Though, “these differences may be explained by variables besides going to a liberal arts college, such as gender, race, and choice of major or occupation.” This paper also doesn’t evaluate non-pecuniary benefits in case studies, which I think would have provided better insight to their paper. Another economic angle I read was from NPR’s Boston radio station, WBUR, that discussed the Edmit model concluding that one-third of private 4-year colleges are at high risk financially. The Edmit model included data analyzed from 17 years of tuition revenue, return on investments, expenses, and the size of tuition discounts that 937 colleges offer students. They analyzed colleges’ reliance on international students and, taking the COVID-19 pandemic into account, the model assumes that colleges will lose 10% of their tuition revenue this coming academic year because of fewer enrollments and 20% the following year. It also assumes that revenue from investments declines 20% this next academic year. But it also assumes that colleges will save 10% in salaries next year. Knowing more about the financial health of colleges sheds light on issues women’s colleges could be struggling from. However, the lack of quantitative analysis of women’s colleges specifically emphasizes the outstanding gap in economic considerations. I discuss this further in my limitations section.

IV. Data

A. Data Collection

Higher education institutions did not have to report data until the Higher Education General Information Survey (HEGIS) which was conducted for the first time in 1966. Before that survey, there wasn’t even a list of all the colleges in the United States; more specifically,

there wasn't a published list of women's educational institutions until 1980 with the Integrated Postsecondary Education Data System (IPEDS). Bearing this in mind, I individually collected and created my own original data set.¹⁵ I utilized several different websites that have published higher education statistics, such as *US News*, The Women's College Coalition, Data USA, and information from the working paper, *When Sarah Meets Lawrence* by Avery Calkins, et al. I combined these various sources to create a list of current and former women's colleges that were in existence between 1960 and today. To evaluate factors of former women's colleges, I chose to look at spatial economic variables for my larger regression analysis. The variables I collected (by county) are rural-urban continuum score, unemployment rate, female labor participation rate, religious affiliation, and the ratio of women's colleges now versus at its peak. In a logistic regression, I would test these variables against the current status of the college (183 colleges no longer being women's colleges versus 29 active women's colleges).

I also logged the following factors for women's colleges that still exist today: year of establishment, undergraduate enrollment¹⁶, acceptance rate, tuition and fees, endowment size (then endowment per student,) and religious affiliation. My study is the first to include this data and compile them all in one set. I chose these factors because I believe them to be some of the most pressing quantitative details that contribute to someone's choice of college. Acceptance rates can (though not exclusively) point towards the academic prestige of a school; tuition and fees indicate (on average) the cost of attendance; and endowment sizes are important for assessing the financial resources a school has as well as depth of connections to job and graduate school opportunities. These are all among the top five factors for college choice as studied by the

¹⁵ By doing this there are certain variables that are limited in the accuracy of the data.

¹⁶ I pulled data according to US News, IPEDS (Integrated Postsecondary Education Data System), and Common Data Sets of individual colleges from 2021 and 2015 and calculated the percent change between them for enrollment, acceptance rate, and endowment size total and per student.

U.S. Department of Education in 2018. However, this data has only become more readily available in the past couple years, thus, it was only available for a limited number of women's colleges — colleges that are still currently operating as of late 2021. Without these observations for the other 183 formerly women's colleges, I did not have enough for a regression analysis. I instead include descriptive statistics in my Appendix.

V. Descriptive Statistics

A. Current Women's Colleges Original Data Set

There are a total of 212 observations in my dataset. This number represents all the former and current women's colleges that I was able to identify and gather data on.¹⁷ I generated an indicator variable entitled *current status*, in which 0 represented a former women's college that either shut down or turned coeducational and 1 represented current women's colleges. I used this indicator variable as my outcome in my original logistic regression. The other variables that I tested against *current status* were the year the college was *established*, *religious affiliation* (0 for not religious and 1 for religious), *metro* (an indicator variable I generated based off the rural-urban continuum codes — with 0 for a college not in a metropolitan area [rural-urban continuum coded county of 4-9] and 1 for in a metropolitan area), *female labor participation rate*, and *unemployment rates* of the county a school was located in.

Below, Table 2.1 shows the descriptive statistics for the six variables I collected on all the women's colleges that I could. These include each variable's mean, standard deviation, and range. Tables 2.2, 2.3, and 2.4 are more specific tabulations detailing the current status of the

¹⁷ Determining which institutions were women's colleges six decades ago has proven to be quite a challenge. Higher educational institutional data is very scattered, and some schools have kept better records than others. There is no universal list of all women's colleges that has existed, and I am piecing together things from various incomplete sources in which estimates differ. The Women's College Coalition estimates the number of women's colleges in 1960 to be close to 300, while the United States Office of Education estimates there were 252 women's colleges in 1960, various historians have stated there were 230.

colleges in the sample and the frequencies of religious colleges and metropolitan located colleges. Notable percentages I observed are: 37% of current existing women’s colleges and 63% of all women’s colleges in my dataset are or were religiously affiliated, versus 21% of all current private colleges in existence today (IPEDS). Additionally, 88% of all women’s colleges have been in currently metropolitan dense counties and 96% of currently active women’s colleges are in metropolitan dense counties. Of the 212 women’s colleges total, the 29 currently active represent that a slim 14% survived. This doesn’t include women’s colleges that shut down before 1960, of which there are many.

Table 2.1 - Sample Descriptive Statistics **Number of obs = 212**

Variable	Mean	Std.Dev.	Min	Max
Current status	0.137	0.344	0	1
Established	1905	34	1824	1989
Metro	0.882	0.323	0	1
Religious Affiliation	0.632	0.483	0	1
Female Labor Force Participation Rate 2020	0.746	0.046	.54	.84
Unemployment Rate 2020	0.082	0.021	.04	.16

Current Status: 0 = no longer a women’s college (closed or switched to coed) 1 = still active women’s college
 Metropolitan: 0 = not metropolitan area (rural-urban continuum code of 4-9¹⁸) 1 = metropolitan (code of 1-3)
 Religious Affiliation: 0 = not religiously affiliated 1 = affiliated religiously

¹⁸ Rural Urban Continuum Code refers to the population density of a county. It distinguishes metropolitan counties by the population size of their metro area, and nonmetropolitan counties by degree of urbanization and adjacency to a metro area. Metro and nonmetro categories have been subdivided into three metro and six nonmetro categories. (US Department of Agriculture) <https://www.ers.usda.gov/data-products/rural-urban-continuum-codes/>

Table 2.2 - Tabulation of Current Status of Colleges

Current Status of College	Freq.	Percent	Cum.
0	183	86.32	86.32
1	29	13.68	100.00
Total	212	100.00	

Current Status: 0 = no longer a women's college (closed or switched to coed) 1 = still active women's college

Table 2.3 - Tabulation of Current Status of Metropolitan Colleges

Current Status of College	Metropolitan		
	0	1	Total
0	24	159	183
1	1	28	29
Total	25	187	212

Current Status: 0 = no longer a women's college (closed or switched to coed) 1 = still active women's college
Metropolitan: 0 = not metropolitan area (rural-urban continuum code of 4-9) 1 = metropolitan (code of 1-3)

Table 2.4 - Tabulation of Current Status of Religiously Affiliated Colleges

Current Status of College	Religious Affiliation		
	0	1	Total
0	65	118	183
1	13	16	29
Total	78	134	212

Current Status: 0 = no longer a women's college (closed or switched to coed) 1 = still active women's college
Religious Affiliation: 0 = not religiously affiliated 1 = affiliated religiously

In Figure 1.4, I present a cartographic representation of where women's colleges in the US have been located at their peak (I generated this using STATA). While the peak for each state

may be in a different year, they are each in between the 1960s and 1970s. I calculated this by grouping the 212 colleges in my dataset by geographic location. Figure 1.5 shows the same density representation but instead of all women's colleges, it displays where the 29 women's colleges still left are located now. At their peak, the states with the most women's colleges were New York with 28 colleges, Pennsylvania with 22, and Massachusetts at 20. The state with the most women's colleges now is Massachusetts, which has five women's colleges. Pennsylvania has two, and New York, one. By contrast, Massachusetts currently has 77 private colleges total (so women's colleges make up 6% of them), Pennsylvania has 155, and New York has 220 (Bryant 2021). It does not surprise me that higher populated states during the 1960s are where the most women's colleges were. The Northeast is where Ivy League institutions are located, so having women's colleges in their proximity matches our history. Including these maps in my dataset demonstrates how drastically the number of colleges has changed. They also highlight the bigger picture of decreasing educational opportunity. The overall portrait that emerges is how women's colleges have been stripped in the US substantially. Geography matters because spatial economics questions, such as how many colleges are in a state, how many metropolitan cities are in a state, and clusters of women's colleges in a state are all factors that can help explain whether a location is better equipped to support a certain number of colleges. Other demographic characteristics of New York, Pennsylvania, and Massachusetts were that they were all Democratic states during the 1960 presidential election between John F. Kennedy and Richard Nixon (though not all counties where women's colleges were located voted blue). These three states were among the top 10 economies in the US by GDP: New York had the largest, Pennsylvania the fourth largest, and Massachusetts the ninth largest.¹⁹ I would be interested in

¹⁹ Using inflation-adjusted data from the U.S. Bureau of Economic Analysis.

other studies conducted on these states to see if other state variables correlate with college concentrations.

Figure 1.4

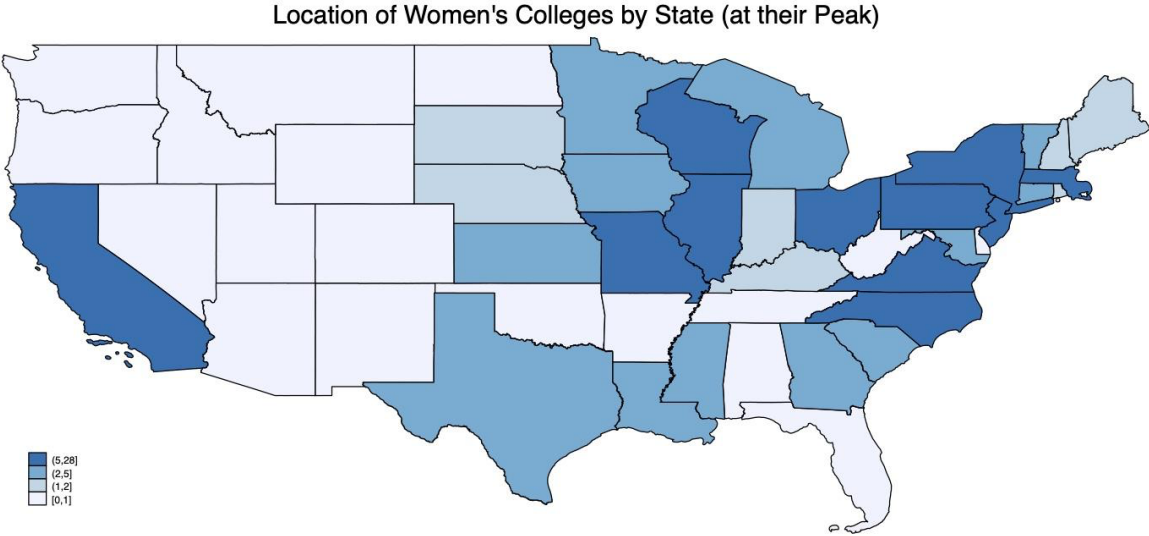
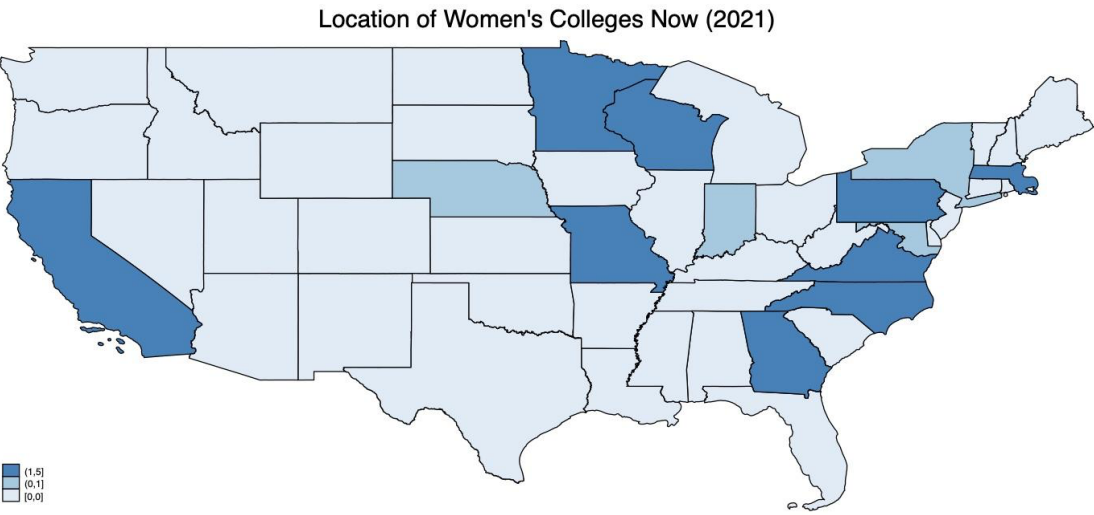


Figure 1.5



VI. Results

A. Regressions

I conducted a logistic regression with *current status* as a binary indicator variable. I wanted to determine whether proximity to a metropolitan area, religious affiliation, unemployment rate, and labor force participation in the county affected if a school was still a women's college or not. In Table 3.1 I present the results of my first logistic regression, which showed that there was high statistical significance for a college's year of establishment. My p-value was .002 and the coefficient was -.02. This means that with each additional year earlier a college was founded, it was 2% more likely to survive and still be a women's college now. If we were to multiply the coefficient by ten, analysis could be applied for decades. Thus, each decade earlier a college was founded, it would be 20% more likely to still be a single-sex institution now.

My regression analysis on the other spatial economic variables originally suggested that there is no statistical significance for proximity of women's colleges to metropolitan areas, religious affiliation, or female labor participation and unemployment rates. However, I then calculated the marginal effects of logistic regression, as presented in Table 3.2 which then indicated that colleges in metropolitan areas were more likely to survive. The p-value was 0.026 and thus is statistically significant. Marginal effects are a way to adjust the predictions made in a logistic regression and assists in better interpreting the slope of the variable.²⁰

²⁰ However, the effect is estimated on the probability at the mean values of the variable, so this could mean the impact is significant at the mean but not generally.

Table 3.1 - Logistic Regression

Current Status	Coef.	St. Err.	t-value	p-value	[95% Conf	Interval]	Sig
Established	-.02	.007	-3.12	.002	-.033	-.008	***
Metro	1.45	1.08	1.34	.18	-.668	3.567	
Religious Affiliation	-.256	.421	-0.61	.544	-1.081	.57	
Female Labor Force Participation Rate 2020	7.654	6.088	1.26	.209	-4.277	19.586	
Unemployment Rate 2020	2.397	11.279	0.21	.832	-19.711	24.504	
Constant	29.891	12.089	2.47	.013	6.196	53.586	**
Mean dependent variable	0.137		SD dependent variable		0.344		
Pseudo r-squared	0.088		Number of observations		212		
Chi-square	14.900		Prob > chi2		0.011		
Akaike crit. (AIC)	166.318		Bayesian crit. (BIC)		186.457		

*** $p < .01$, ** $p < .05$, * $p < .1$

Table 3.2 - Marginal effects after logit

$$y = \text{Pr}(\text{current status}) (\text{predict}) = .11016458$$

Variable	dy/dx	St. Err.	z	P>z	[95% CI]	x	Sig
Established	-0.002	0.001	-3.330	0.001	-0.003	-0.001	1905.4	***
Metro*	0.095	0.043	2.230	0.026	0.011	0.178	0.882	**
Religious Affiliation*	-0.026	0.044	-0.590	0.554	-0.111	0.060	0.632	

Female Labor Participation Rate 2020	0.750	0.588	1.280	0.202	-0.401	1.902	0.746
Unemployment Rate 2020	0.235	1.105	0.210	0.832	-1.931	2.401	0.082

(*) dy/dx is for discrete change of dummy variable from 0 to 1

In significance column: *** $p < .01$, ** $p < .05$, * $p < .1$

After discovering there was significance to the establishment year variable, I was curious to see if there was a more specific period that was likely to yield a successful women’s college. I created two histograms (Figures 2.1 that 2.2) that showed the density of when successful and unsuccessful women’s colleges were founded. Figure 2.2. makes it clear that women’s colleges founded during the final two decades of the 19th century had an unusually high rate of surviving and thus remaining open at the current time.

Figure 2.1

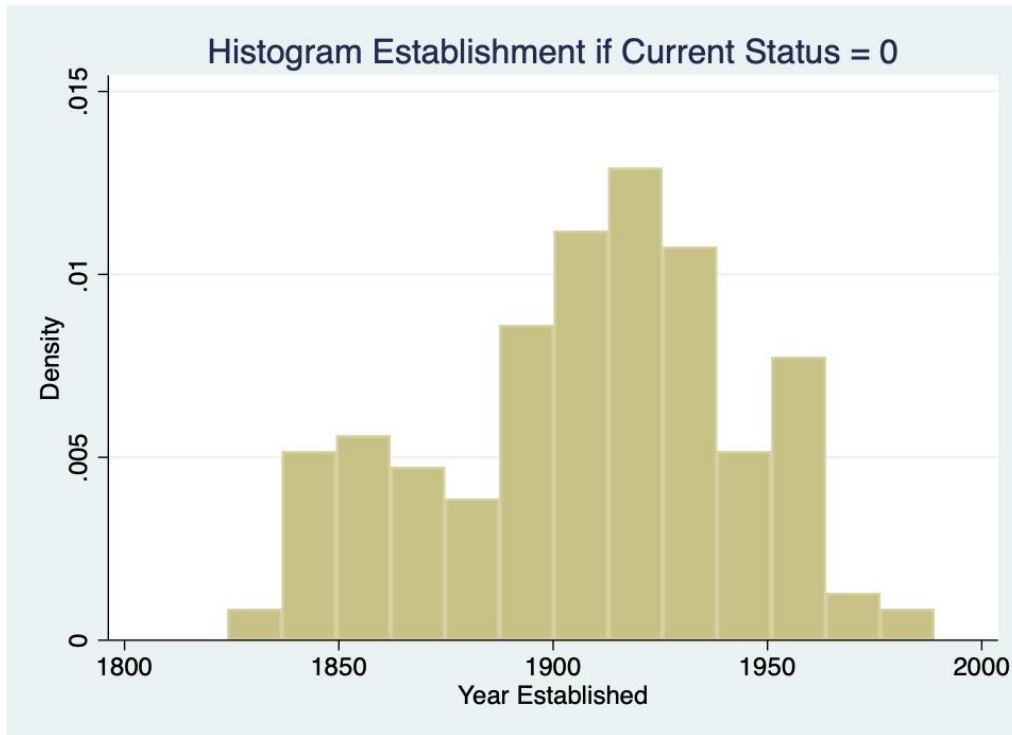
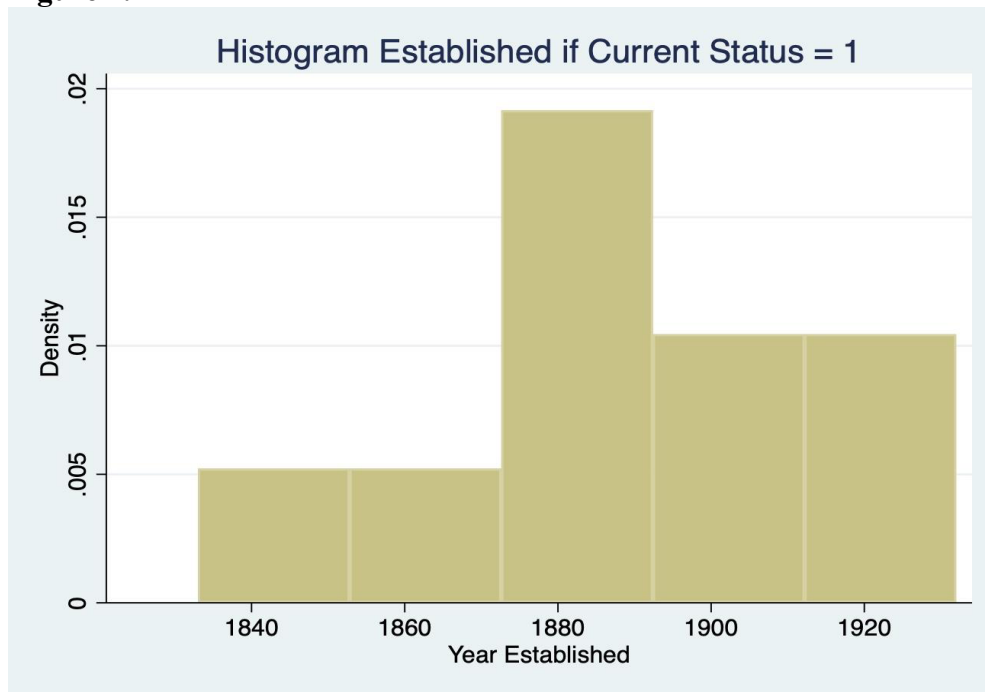


Figure 2.2



That fact led me to creating a new variable to regress against *current status*, which was *established late 1880s*. This time period included all the colleges that were founded between 1880 and 1900. In Table 4.3 you see the tabulation of how many colleges are included in this new variable (about 18% of the whole sample are considered to have been established in the late 1880s). In Table 4.1 you see the significance of this new variable which yielded a p-value of .005 and a coefficient of 1.251. The marginal effects for this second regression are shown in Table 4.2, confirming there is high significance for the establishment variables and slight significance for proximity to metropolitan areas. The p-values on the marginal effects were 0.026 for *established in late 1880s*, 0.002 *established year* (in general), and 0.075 for metropolitan. This means that colleges founded in the late 1880s had chances of remaining open that were 15 percentage points higher than colleges not established in that time period. And colleges founded in metropolitan areas had chances 7 percentage points higher of remaining open.

The time of the late 1880s was also considered the Reform Era (also known as the Progressive Era) and is linked in first-wave feminism. Women were fighting for equality in education, labor rights such as women in unions, and electoral rights such as voting access. Beforehand women were still unable to do basic things like get credit in their own names or take certain legal actions on their own authority. Notably, between 1870 and 1930, the percentage of women represented in the occupational groups increased from 5% of all employed women in 1870 to 14% by 1930 (Oppenheimer, 1970). Harwarth elaborates, “Progressive education movement, emphasized student centered learning... the movement ‘put great priority on creativity and independence in the classroom. Art and music were considered as intellectually important as the humanities, social sciences, and the physical and biological sciences. During this period, two-year women's junior colleges with vocational missions were founded. The 1920s and 1930s also saw the founding of new Catholic women's colleges. By World War II there was a wide variety of women's colleges, including four-year colleges and universities, professional and normal schools, teachers' colleges, and two-year institutions.” (Harwarth 1997). These distinct characteristics of the Progressive Era correlate directly with the increase of women’s college establishment and thus the significance of their survival long-term.

Table 4.1 - Logistic Regression

Current Status	Coef.	St. Err.	t-value	p-value	[95% Conf	Interval]	Sig
Established Late 1880s	1.251	.445	2.81	.005	.379	2.123	***
Established	-.02	.007	-2.79	.005	-.035	-.006	***
Metro	1.26	1.093	1.15	.249	-.882	3.401	
Religious Affiliation	-.228	.43	-0.53	.596	-1.072	.616	
Female Labor Force Participation Rate 2020	8.254	6.247	1.32	.186	-3.991	20.498	
Unemployment Rate 2020	2.805	11.865	0.24	.813	-20.449	26.06	
Constant	28.971	13.511	2.14	.032	2.49	55.453	**
Mean dependent var		0.137	SD dependent var			0.344	
Pseudo r-squared		0.133	Number of obs			212	
Chi-square		22.445	Prob > chi2			0.001	
Akaike crit. (AIC)		160.773	Bayesian crit. (BIC)			184.269	

*** $p < .01$, ** $p < .05$, * $p < .1$

Table 4.2 - Marginal effects after logit

y = Pr (current status) (predict) = .09882111

variable	dy/dx	St. Err.	z	P>z	[95% CI]	X	sig
Established Late 1880s*	0.154	0.069	2.230	0.026	0.019	0.289	0.179	**
Established	-0.002	0.001	-3.050	0.002	-0.003	-0.001	1905	***
Metro*	0.078	0.044	1.780	0.075	-0.008	0.164	0.882	*
Religious Affiliation*	-0.021	0.040	-0.520	0.605	-0.100	0.058	0.632	
Female Labor Force Participation Rate 2020	0.735	0.551	1.330	0.182	-0.346	1.816	0.746	
Unemployment Rate 2020	0.250	1.058	0.240	0.813	-1.824	2.323	0.082	

(*) dy/dx is for discrete change of dummy variable from 0 to 1
 In significance column: *** $p < .01$, ** $p < .05$, * $p < .1$

Table 4.3 - Tabulation of Established between 1880-1900

Established in between 1880s and 1900s	Freq.	Percent	Cum.
0	174	82.08	82.08
1	38	17.92	100.00
Total	212	100.00	

VII. Case Studies

I introduce three case studies as a complement to my quantitative analysis, researching one former women's college that shut down, one that transitioned to coeducation, and one college that remained a successful single-sex institution. Case studies allow me to discuss factors that I could not analyze in my regression, such as the historical context of the time period of a college's founding or how a time period could influence schools to turn to coeducation in the first place.

Organizationally, colleges have their own qualities I can illuminate better through these cases. I chose Judson College for the unsuccessful case study because it is a recent case—the college only announced their closing this past July of 2021. Judson was a religiously affiliated college, which includes factors and discrepancies that wouldn't exist in the other case studies. For my coeducation case study, I chose to look at Vassar College. Vassar was founded in 1861 but transitioned to be coeducational in 1969, which was a year in which at least 19 other women's colleges started accepting men. The time period of 1960-1970 was an extremely important one to women's colleges in general, so I wanted to take the opportunity to explore this era further. Vassar was also one of the original Seven Sisters, which relates it well to my literature review. My successful women's college case study is about Wellesley College, one of the original Seven Sisters and one of the few remaining women's colleges in the US. Wellesley has the largest endowment of any current women's college and is located in Massachusetts, the state that currently hosts the largest number of women's colleges in the country. Wellesley is also in a metropolitan dense county with a large female labor force participation rate. Wellesley endured the push for coeducation and even considered merging with several other men's colleges. Given all these factors, Wellesley was an ideal choice because it features what I

hypothesized would be the most significant factors to college survival. First, I will introduce Judson College, then I will discuss Vassar College, and finally talk about Wellesley College. I chose this order because I want to conclude my thesis with recommendations for saving women's colleges. My case study on Wellesley will provide an ideal segue for this.

A. Closure Case Study: Judson College

Judson College, located in Marion, Alabama, and the subject of this case study, was founded in 1838 making it the fifth-oldest women's college in the United States at 183 years old. The founders included Edwin King, who provided financing; Julia Tarrant Barron, who rented a building for the school; and James DeVotie, pastor of Siloam Baptist Church in Marion. The college's first president was Milo Jewett (who later was the first president and helped cofound Vassar College). Judson began as a Baptist institute and prior to its closing was part of the one-third of the remaining women's colleges to have a religious affiliation.

The Board of Trustees at Judson announced that the college would be shutting down at the end of their 2021 summer term.²¹ Enrollment was dismal in the spring and had been declining for more than a decade, with only 145 students enrolled. Eight students were expected to return for the 2021-22 academic year, and 12 new students had committed to attend Judson that fall. Operating a college for fewer than 100 students was just not financially viable especially with Judson owing more than \$15 million in unpaid debt. While Judson did have a board-operated endowment of \$9.8 million, and \$6 million in perpetual trusts held by The Baptist Foundation of Alabama, these funds were donor-restricted for scholarships. Judson had been using earnings from the endowments, students' tuition and fees, gifts through the

²¹ There is speculation that the college could become a state-run institution — or become a part of the Wallace Community College system, but as of now, the college has suspended all academic operations.

Cooperative Program amounting to about \$1 million, and \$500,000 to \$800,000 from donations as part of its annual income. Judson also received more than \$2.4 million through the pandemic-related federal and state relief which without, would have caused the school to close in the fall of 2020. Tuition brought in about \$14,000 per student each year, but the cost to the college per student each year was roughly \$40,000. Every year Judson was forced to make up a difference of over \$25,000 per student (though these numbers didn't include room and board which brings in \$10,000 per student per year and 127 students were living on campus). Before announcing their closure, Judson had been enlisting the services of Fuller Higher Ed Solutions to research the college's changing markets and to explore potential avenues for turning around their financial situation. However, they concluded that Judson would need \$40 million to save the school, even if that amount came in at \$8 million a year for the next five years; \$5 million to close the operating deficit, \$2 million to revive the buildings and infrastructure, and \$1 million for seed money for revamping and rebranding the school. Typically, the threshold for a successful college is about a \$50 million endowment. Judson's 23rd President W. Mark Tew stated, "New donors did not materialize, student retention is much lower than expected and mounting debt pressures have increased" (Saballa 2021). Judson was among the bottom for women's colleges in terms of endowment, enrollment, and retention. Judson's revenue decreased by nearly half a million dollars; their graduation rate had decreased significantly, for every 100 students that enrolled in 2014 only 37 graduated by 2019; typically, the graduation threshold rate for colleges is 70%.

However, Judson College showed very little similarity with other women's colleges, other than the fact of being a college for women. Judson had these financial and retention issues, I suspect, because of some of the more unique elements of the college. Rather than having a niche that provided Judson with an advantage over other colleges, being in a rural city, a

religious institution, and single sex limited the prospective students applying (Gibbs 2021). Judson College has also received heated criticism for its attitude toward LGBTQ+ students, having made Campus Pride’s list for “The Absolute Worst Campuses for LGBTQ Youth” because it holds an exemption to Title IX, allowing the college to discriminate against its students because of sexual orientation, gender identity, marital status, pregnancy, or receipt of abortion while still receiving federal funds. Many women’s colleges have become known as providing a safe space for marginalized communities, and rather than embracing that, Judson has actively made decisions that go against this.

I now will discuss Vassar College because I want to discuss the different paths that successful liberal arts colleges have pursued: transition to coeducation versus remaining true to their original mission as a women’s college. I focus on Vassar because of its relationship to the Seven Sisters, which allows for a direct comparison to Wellesley, a remaining Seven Sister. Their enrollment numbers are similar, but their endowments are widely different (Wellesley has twice as much as Vassar), and their histories are connected, so it makes the most sense as case studies to determine predictions and discuss their trajectories.

B. Coeducation Case Study: Vassar College

Matthew Vassar and future president of Vassar—Milo P. Jewett’s goal was “to build and endow a college for young women which shall be to them, what Yale and Harvard are to young men.” (Vassar Encyclopedia). Jewett once stated that, “If you will establish a real College for girls and endow it, you will build a monument for yourself more lasting than the Pyramids; it will be the pride and joy of Poughkeepsie, an honor to the state and a blessing to the world” (Levine 2015). Vassar College, founded in 1861 and located in Poughkeepsie, New York, was a women’s college for 105 years before transitioning to become coeducational in 1969. Before

making this decision, Vassar and Yale discussed the possibility of developing a coordinate relationship (which would require Vassar moving to New Haven, CT) while maintaining separate administration and financing, but sharing some academic programs. However, “Vassar was an independent spirit. It had its own identity and would not give [it] up...for even the most esteemed academic partner. Vassar saw that, despite the outward pleasantries and commitment, Yale was trying to sweep its female counterpart under the rug. Vassar would not join with a school on unequal footing — it simply would not be in the spirit of coeducation” (Lipsky 2017). Vassar had not been significantly suffering financially or from lack of enrollment. Ultimately, as stated by their sixth President Sarah Blanding, Vassar chose to begin admitting men due to changing societal norms, to maintain relevance and increase prestige. Many of the incoming Vassar students had attended public, coeducational schools rather than private, single-sex ones from before. Coeducation was becoming the scholastic norm and attending a women’s college seemed decidedly retrogressive to many applicants.

What did Vassar gain from becoming coeducational? At first, Vassar was not able to garner the number of male applicants as originally aimed for. They wished to increase enrollment from 1500 women to 2400 total students evenly split between men and women. However, the admission director at the time Richard Stephenson stated that, “male students, with the right qualifications have not been applying in sufficient numbers and the college now seems ‘stuck’” (Peterson 1974). In 1974, Vassar had an enrollment population of 2200 with a third of students being males and the college board scores of entering students were dropping faster than in the nation as a whole; fewer students at the top of their high school classes were applying to Vassar than before. In an interview with New York Times, Stephenson pushed back against this stating that the stereotype of Vassar male students was that they were “rejects” from more

prestigious schools did not trouble them. “To be perfectly truthful, many people who come here are Harvard, Yale and Princeton rejects, and that suits me fine because they turn down pretty fine people.” (Peterson 1974)

The Vassar sex ratio now hovers around 60% women and 40% men, but the gender imbalance has been described as something that adds to the campus culture. “The familial campus vibe, the resounding sense of sensitivity among both male and female students, the Vassar male became a “type” unto himself – socially aware, sensitive, and humble” (Vassar Encyclopedia). Financially, Vassar boasts a sizable endowment of \$1.379 billion, smaller than Wellesley College and Smith College but greater than Bryn Mawr’s endowment.

Some say that Vassar needed to become coeducational (either through a merger with Yale or how it was done) because of social isolation. “The [women’s] schools that stayed — Smith, Holyoke, Barnard, Wellesley, Bryn Mawr — were all in situations where students could have social lives outside that involved men [and women] from local colleges...Vassar didn’t have those options” (Lipsky 2017). Four of the other Seven Sisters did not become coeducational and are among the only living women’s colleges today. One of them is the subject of my next case study, Wellesley College.

C. Successful Case Study: Wellesley College

Wellesley is a model example of a women’s college that has been extremely successful. It has the largest endowment of any women’s college in the United States at over \$2 billion, it also has the second lowest acceptance rate, making it a very prestigious institution. US News ranks Wellesley as the fifth best liberal arts college, and Forbes ranks it the 32nd best college the US overall, above coeducational institutions such as Claremont McKenna College, Bowdoin

College, and Carleton College. Wellesley, founded in 1875 is one of the aforementioned Seven Sisters and is in Massachusetts.

Henry Fowle and his wife Pauline Durant co-founded Wellesley College in 1875 to provide women with college opportunities equal to those available to men, declaring that “womanhood [had] to come up higher, to prepare herself for great conflicts, for vast reforms in social life, for noblest usefulness.” (Kingsley 1924). Wellesley’s first president, Ada Howard, and nearly all the early educators and administrators were women. This has remained a notable feature, as every president of Wellesley has been a woman and the college recruit a high percentage of women faculty. Wellesley has always been ahead of the curve when it comes to educational opportunities, in fact between 1875 and 1921, Wellesley employed more female scientists than any other U.S. institution of higher education, their alumni are awarded more science and engineering doctorates than female graduates of any other liberal-arts college in the nation. Wellesley also has an impressive alumni network of highly successful professionals that has helped maintain its esteemed reputation. In fact, applications increased an impressive 15% in 1993, the year Hillary Clinton moved into the White House. They also boast another secretary of state, a groundbreaking string theorist, a NASA astronaut, and Korea’s first female ambassador, etc.

Wellesley, like Vassar, considered merging with a men's college, in this case it was Massachusetts Institute of Technology (MIT). However, the board ultimately decided against it. The women's movement came with a new set of ideas about female solidarity, and the theory that women should have a period of sanctuary from a male dominated world during the formative college years. Despite not merging, the schools maintain a strong relationship. Wellesley students can take as many courses at MIT as they can fit into their schedule and there is a bus

that takes Wellesley college students to MIT multiple times a day and vice-versa (for return trips and for MIT students who take courses at Wellesley). This resembles a similarity to Barnard College's arrangement with Columbia University (Barnard is considered the most prestigious women's college today). In addition to cross-registering at MIT, Wellesley students also can register at Olin College of Engineering, Babson, and Brandeis. In comparison to other Seven College schools, Wellesley was viewed as one of the best academically, and although secondary school students in the Boston area see transportation as a problem, Wellesley is not placed in Vassar's "isolation" category. This was a major benefit for the college when coeducation became popular.

When considering merging with MIT, Wellesley students and faculty had warnings about what attitudes would be like and the backlash that could occur and were able to utilize this to better inform their decision. Yale men had said things like, "If you have to admit women, why don't you admit good-looking women, rather than these dogs?" and women were saying "The reality was that a number of us were enjoying leadership roles at Wellesley, and just couldn't give them up. We are keenly aware of how our sisters [at Radcliffe] were treated in both the social and extra-curricular hierarchy of Harvard College" (Malkiel 2016). Deciding against merging was a controversial and brave choice met with mixed responses but doing so proved successful as the women's movement grew. Students were glad that the matter was considered thoughtfully and not on the "basis of emotion of faddishness." At first Wellesley struggled with a decrease in applications, especially early decision which had a 48% drop over a three-year period (1968-1971), but the college managed to recover and the caliber of students applying (as measured in aptitude test scores) remained very high throughout. Wellesley is unique in the way they have been dedicated to remaining a women's college. After rejecting the possible merger

with MIT, the Board of Trustees released a statement regarding their rationale, “the belief that coeducation was superior to single-sex education remained not proven.” *The Wellesley News* also reported that the intensification of the women’s liberation movement played a role, they were convinced that, “until women are fully accepted as equals to men—not by law, but by custom—and until women receive the same job opportunities, wages and prestige as men, there is a vital role for women’s colleges. As long as women are kept off Boards of Trustees, out of jobs, there is a need for Wellesley College...Wellesley has recognized the educational advantages of an education without men...Women are not an afterthought at Wellesley. Women belong here.” (Malkiel 2016). Wellesley, once rejecting coeducation, never looked back. From its founding, Wellesley has been dedicated to their mission of serving women, through prioritizing their students' opinions, exclusively hiring women for most administrative roles, and learning from the actions of similar liberal arts colleges to strengthen their own position and success. Wellesley continues to be a college that prioritizes being a safe space for women while expanding this reach to marginalized communities in general. Wellesley was among the first women’s colleges to reform their admissions policy to accept transgender women. Their policy states they, “will consider for admission any applicant who lives as a woman and consistently identifies as a woman; therefore, candidates assigned male at birth who identify as women are eligible to apply for admission. Individuals assigned female at birth who identify as non-binary are eligible to apply if they feel they belong in our community of women. Individuals assigned female at birth who self-identify as men while at the institution are able to continue to earn a degree.” This is a stark contrast to what some other women's colleges have done; thus, Wellesley has a wider pool of applicants. This balance of make advantageous adaptations to admissions, while never straying from their mission to women, Wellesley has an edge over other women’s colleges.

D. Regression Results in Relation to Case Studies

My regression results suggested that schools that were established earlier and located in metropolitan dense cities would be more successful. I want to make connections to my case studies and these conclusions.

Judson College, though established early, in 1838, was not established in the peak as represented in my established in late 1880s variable. Additionally, Judson was not located in a metropolitan city. In fact, Marion, Alabama has a very small population of 8,359 people in the whole county.

Vassar College was established in 1861 which is near my established late 1880s variable but not quite within the range. The early 1860s corresponds with the civil war, a time period that affected education access. Vassar is also located in Dutchess County, which is a metropolitan dense county, though not located near many other colleges of the same caliber. New York, which used to be home to multiple women's colleges, no longer has the same amount with Barnard being the only remaining women's college in the whole state. It is worth noting that Barnard was founded in 1889, a statistically significant year for women's colleges — as proven in my regression analysis.

Wellesley College was established in 1875, so it is the closest case study to be established during the peak time period correlated with successful women's colleges. Norfolk County is also a metropolitan dense county. Massachusetts now boasts the greatest number of women's colleges as it hosts Smith College, Mount Holyoke College, Bay Path University, Simmons University in addition to Wellesley.

VIII. Discussion

A. Drawbacks

The main setback I faced while conducting my research was the lack of record-keeping regarding higher education institutions, and women's college data. Having the acceptance rates, enrollment numbers, and endowment size of colleges from the 1960s (which I only had for current colleges) would have allowed me to run more complete regressions and compare the colleges that shut down to the ones still alive, financially, rather than just geographically. I would have loved to make more specific predictions which would have added to this study greatly. A perfect study would have allowed me to build a complete profile with specific financial characteristics such as: "colleges that have endowments of \$70+ million, at least 1500 enrolled students, and located in metro areas will survive at least 5 years longer than those that do not." Although I was able to identify some patterns within my variables, the endowments and enrollments couldn't be completely evaluated without the numbers of former colleges at times of their shutdowns, which were impossible to find. Instead, I had to base my analysis off more limited data that I collected myself.

Questions I would love to see studied in the future could be (1) Did a lack of coordinate colleges contribute to a lack of women's colleges in the west? (2) How long does it take for a college to shut down/how quickly is it possible to recover? (3) Do colleges that turn coed still fail financially at one point? Many of these questions could be evaluated with financial records. I came across non-profit financial composite scores and college financial health grades for the past couple of years, through Forbes Magazine.²² This article also discussed potential cost-cutting

²² Matt Schiffrin and Carter Coudriet at Forbes produced two cover stories, "Dawn of The Dead: For Hundreds of The Nation's Private Colleges, It's Merge or Perish" and College Financial Health Grades: How Fit Is Your School? I would love to see someone start another study utilizing these metrics.

initiatives such as the elimination of unpopular majors, which would be fascinating to learn more about. Potentially, as time goes on, there will be data on the closures of colleges that fail, though it would be a shame to not know how to prevent this. I think it is important to reflect on why this data is missing and encourage you to wonder, if it points to our society's lack of care and interest in women's institutions, empowerment of women's lives, and the improvement of their future careers. Suggestions I would have to combat this would be for colleges, to participate in the Common Data Set initiative,²³ engage in transparent financial literacy practices, and push for more women-led groups on campus (both administrative and student-run) so that students and alumni can be more aware of the need for donations and contribute to their alma maters consistently.

B. Predictions

In the past decade the number of women's colleges in the US decreased by 40%. On average, the United States has lost women's colleges at a rate of 31% between 1960 and 2021. Given this rate of decline, it is reasonable to estimate that by the year 2030 there will be 20 women's colleges left. By 2050, there would be approximately nine women's colleges left, proving Sarah Blanding's prediction correct, a decade earlier than she anticipated. Admittedly, there have been various unforeseen events that have contributed to declines in colleges. For example, the COVID-19 pandemic has led to the closures of four women's colleges and pushed five colleges to turn coeducational. Coronavirus was not exclusive in contributing to women's college shutdowns, but to other private colleges that were in precarious financial positions.

²³ This was one of the most beneficial ways to get individual college data. It provides a set of standards and definitions of data items. Each of the higher education surveys conducted by the participating publishers incorporates items from the CDS as well as unique items proprietary to each publisher. Consequently, the publishers' surveys differ in that they utilize varying numbers of items from the CDS.

Regardless, women's colleges have not been able to decrease their closure rate so it is unlikely that all 29 currently open will continue to be. However, I would predict that the five remaining Seven Sisters will be among those alive for the next couple decades. It is difficult to predict which other women's colleges will be standing with them.

C. Investment

However, there are a couple of colleges that have struggled, neared closure, and then been able to strengthen their finances. Agnes Scott College in Decatur, Georgia announced its restructuring plans and future goals to maintain their status as an active women's college. "We balanced our budget during this time, because our faculty and staff, especially our senior leadership, were willing to take some pay reductions and some reductions in expected benefits, with the result that we were able to continue doing the work and serving our students," said President Leocadia Zak in late 2020 (Amis 2020). Agnes Scott set a goal to increase enrollment to 1100 undergraduate students, which has been identified as a stable population in order to maintain its operations, and is currently at 1067, an 18% increase from 902 students six years ago. President Zak credited their success to SUMMIT, "an initiative to reinvent a liberal arts education for the 21st century by providing every student with a robust focus on global learning and leadership development" (Case Study Agnes Scott College).²⁴

Sweet Briar College in Virginia was another close call after nearly shutting down operations in 2015 (despite a \$70 million endowment). However, unlike Agnes Scott, which was saved due to its leadership board's determination and the help of outside consultants, Sweet Briar was saved by its active alumni network who leapt into action to save the college and halt the

²⁴ See more from the Association of Governing Boards of Universities and Colleges Innovation in Higher Education's case study on Agnes Scott College and their new SUMMIT initiative.

efforts to close. The higher education industry witnessed how Sweet Briar graduates acted swiftly to build a strong legal case arguing that the board had not done enough to keep the school open, then securing an impressive \$12 million amount in donations for continuing operations. Sweet Briar never closed and transferred leadership to a new president and board on July 1, 2015. Sweet Briar is one of two women's colleges in the country to offer programs in engineering accredited by ABET (Accreditation Board for Engineering and Technology) and the current president Meredith Woo, seems to be emphasizing how groundbreaking that is of an offer. "We [provide] a truly excellent engineering education for women engineers of tomorrow in classrooms devoid of misogyny and intimidation." (Joutz 2018). Sweet Briar women proved there is nothing that they cannot do with determination and grit and they prevailed. I would be interested in further study on what are the best investment opportunities for women's colleges; is legal action the most impactful or is alumni support a better strategy for saving colleges? These two examples show how important investment in women's colleges is, and how easy it can be to save them from closure.

IX. Conclusions

I go to a college in which I am surrounded by women in leadership positions. The president of my school is a woman, the deans of faculty and students are women, and the student body and class presidents are women. When you are brought up in an environment with these norms, you begin to expect that in the world around you, beyond college. This shift in mindset allows change to occur not due to the absence of men, but because of the presence of powerful women. There is an African proverb that asserts, "if you educate men, you educate individuals. But if you educate women, you educate a nation." I believe this is true, and as we continue to research and discuss the significance of women's colleges, it becomes more apparent that they

are an undeniable asset, and it would be a shame for them to continue to dissolve as they have until there are none left.

Through my regression analysis, we gain insight on what factors have kept certain colleges alive, such as time periods and geographic characteristics. My case studies expand on these conclusions by applying them to individual colleges. Judson College didn't meet the criteria geographically and was not founded during the decade of success, and it shut down. Wellesley, by comparison, was founded around the successful time for women's colleges and is in a metropolitan dense county. I also expanded on non-quantitative factors such as historical backgrounds of colleges and the sentiment of student's there to create a wider scope of investigation.

Ultimately, all faltering women's colleges falter in their own way, and though I have identified a couple variables of statistical significance, there are many more that should be studied to discover their potential impacts. By doing so, we have a greater chance of saving future colleges at risk. Additional work on financial health of liberal arts colleges in general and on the remaining 29 women's colleges would be a great contribution to the field. My study is the beginning of a line of inquiry that has been overlooked for too long. We know there is a predominance of women going to colleges, but there are still unequal numbers of women in boardrooms and in the dominant industries. There is failure in women's occupational opportunities, despite shifts occurring in our attempts to empower women in leadership roles and in academia. I conclude that a greater emphasis on education that prioritizes women in a setting that's comfortable and favorable to them, is where we need to look. If women's colleges no longer exist in the future, our nation will suffer consequences.

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XI. Appendix I List of Colleges - Active Women's Colleges identified in bold

Judson College, AL	H. Sophie Newcomb Memorial College, LA	College of Saint Benedict, MN	Vassar College, NY
Mills College, CA	St. Mary's Dominican College, LA	Lea College, MN	Wells College, NY
Notre Dame de Namur University, CA	University of Holy Cross, LA	Stephens College, MO	Barnard College, NY
College of the Holy Names, CA	Wellesley College, MA	William Woods College, MO	Keuka College, NY
Dominican University, CA	Smith College, MA	Maryville University, MO	Skidmore College, NY
San Francisco College for Women, CA	Radcliffe College, MA	Cottey College, MO	Briarcliff College, NY
Loyola Marymount University, CA	Wheelock College, MA	Webster University, MO	College of New Rochelle, NY
Mount St. Mary's University, CA	Mount Ida College, MA	Avila University, MO	Marymount College
Scripps College, CA	Mount Holyoke College, MA	Lindenwood University, MO	Tarrytown, NY
U San Diego College for Women, CA	Bay Path University, MA	Fontbonne College, MO	D'Youville College, NY
Pitzer College, CA	Simmons College, MA	Marillac College, MO	Katherine Gibbs School, NY
Colorado Women's College, CO	Lesley College, MA	Whitworth Female College, MS	St. Joseph's College, NY
Connecticut College, CT	Pine Manor College, MA	Blue Mountain College, MS	Russell Sage College – Albany, NY
Albertus Magnus College, CT	Wheaton College, MA	Mississippi University for Women, MS	Russell Sage College – Troy, NY
University of Saint Joseph, CT	Emmanuel College, MA	All Saint's College, MS	College of St. Rose, NY
Annhurst College, CT	Regis College, MA	Queens University of Charlotte/Charlotte Female Institute, NC	Nazareth College of Rochester, NY
Mount Vernon Seminary and College, DC	Elms College, MA	William Peace University, NC	Sarah Lawrence College, NY
Trinity Washington University, DC	Bradford College, MA	Bennett College for Women, NC	Ladycliff College, NY
Barry College, FL	Endicott College, MA	Salem College, NC	Marymount Manhattan College, NY
Wesleyan College, GA	Anna Maria College for Women, MA	University of North Carolina at Greensboro, NC	Daemen College, NY
Tift College, GA	Newton College of Sacred Heart, MA	Meredith College, NC	Dominican College (of Blauvelt), NY
Spelman College, GA	Cardinal Cushing College, MA	University of Mary, ND	Finch College, NY
Georgia College & State University, GA	Lasell University, MA	College of Saint Mary, NE	Molloy College, NY
Agnes Scott College, GA	Notre Dame of Maryland University, MD	Rivier University, NH	Trocaire College, NY
Clarke University, IA	Goucher College, MD	Notre Dame College, NH	Kirkland College, NY
Marycrest College, IA	Mount Saint Agnes College, MD	Centenary University, NJ	Western College for Women, OH
Mount Mercy University, IA	Hood College, MD	Saint Elizabeth University, NJ	Lake Erie College, OH
MacMurray College, IL	Stevenson University, MD	Georgian Court University, NJ	Case Western Reserve University, OH
Saint Xavier University, IL	Saint Joseph's College of Maine, ME	Douglass Residential College, NJ	Mount St. Joseph University, OH
Barat College, IL	Westbrook College, ME	Felician University, NJ	Notre Dame College, OH
Dominican University, IL	Marygrove College, MI	Caldwell University, NJ	Mary Manse College, OH
Mundelein College, IL	Siena Heights University, MI	Englewood Cliffs College, NJ	Edgecliff College, OH
College of St Francis, IL	Madonna University, MI	Cazenovia College, NY	Ursuline College, OH
Delourdes College, IL	College of St. Scholastica, MN	Manhattanville College, NY	Lourdes University, OH
Lexington College, IL	St. Catherine University, MN	College of Mount Saint Vincent, NY	University of Science and Arts of Oklahoma, OK
Saint Mary's College, IN	College of Saint Teresa, MN	Elmira College, NY	Marylhurst University, OR
Saint Mary-of-the-Woods College, IN			
University of Saint Mary, KS			
Benedictine College, KS			
Newman University, KS			
Midway College, KY			
Spalding University, KY			

Moore College of Art and Design, PA
Mount Aloysius College – Cresson, PA
Arcadia University, PA
Cedar Crest College, PA
Wilson College, PA
Chatham University, PA
Seton Hill University, PA
Bryn Mawr, PA
Margaret Morrison Carnegie College, PA
Marywood University, PA
Immaculata University, PA
Rosemont College, PA
Chestnut Hill College, PA
Villa Maria College, PA
Mercyhurst University, PA
Carlow College, PA
Holy Family University, PA
Gwynedd Mercy University, PA
Cabrini University, PA
Alvernia University, PA
La Roche University, PA
Neumann University, PA
Pembroke College, RI
Salve Regina College, RI
Limestone University, SC
Columbia College, SC
Converse University, SC
Winthrop College, SC
Coker College for Women, SC
Mount Marty College – Yankton, SD
Presentation College – Aberdeen, SD
University of Mary Hardin–Baylor, TX
University of the Incarnate Word, TX
Our Lady of the Lake University, San Antonio, TX
Texas Woman's University, TX
Misericordia University, TX

College of Saint Mary-of-the-Wasatch, UT
Longwood University, VA
Mary Baldwin University, VA
Averett University, VA
Southern Virginia University, VA
Sullins College, VA
Virginia Intermont College, VA
Randolph College, VA
Sweet Briar College, VA
James Madison University, VA
University of Mary Washington, VA
Radford University, VA
Stratford College, VA
Hollins University, VA
Marymount University, VA
Green Mountain College, VT
Trinity College of Vermont, VT
Bennington College, VT
College of St. Joseph, VT
Heritage University, WA
Alverno College, WI
Viterbo University, WI
Mount Mary University, WI
Edgewood College, WI
Marian University, WI
Cardinal Stritch University, WI
Greenbrier College for Women, WV

XII. Appendix II

For my 29 current women’s colleges, I collected data regarding their individual undergrad populations, acceptance rates, tuition fees, and endowment size (total and per student) for 2021 and 2015. I calculated their percent change between the two for each variable as well. Without the data for all former women’s colleges, I did not have enough observations to run a logit regression. Regardless I have included descriptive statistics in Table 5.1 as a starting point for other scholars to build from.

Table 5.1 - Descriptive Statistics on Current Colleges **Obs: 29**

Variable	Obs	Mean	Std. Dev.	Min	Max
Established	29	1879.276	33.415	1772	1926
UndergradPop2021	29	1303.172	762.543	256	2983
AcceptanceRate202021	29	.594	.201	.136	.967
Tuition Fees & Rooming 2020-21	29	51660.586	16322.472	21370	79040
EndowmentSize	29	3.039e+08	5.419e+08	15000000	2.285e+09
Endowment per student 2021	29	198621.59	249609.28	22566.372	1002367.1