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ARTICLES

# Evolutionary Basis of Gender Dynamics: Understanding Patriarchy, the Pay Gap, and the Glass Ceiling

Marc Defant[1a]

[1] Interdisciplinary Studies, University of South Florida

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This article examines the patriarchy through evolutionary psychology, economics, and biology (primarily hormones), suggesting it stems from adaptive strategies rather than from male dominance. Traits like male competitiveness and resource acquisition evolved to meet environmental and reproductive pressures, influenced by female mate selection. Similarly, female preferences for caregiving and stability align with evolutionary roles in child-rearing, implying that gender roles are deeply rooted in biology rather than social constructs. Reevaluating the gender pay gap and the glass ceiling, the article argues that career choices, work hours, and risk tolerance—shaped by hormonal and biological influences—significantly affect workplace disparities. By examining patriarchy through a scientific lens, this article offers a more comprehensive understanding of gender roles, emphasizing the adaptive strategies evolved by both men and women while addressing the intricate interplay of evolutionary influences and the tension between parity and merit.

E. O. Wilson and Richard Dawkins, building on the work of eminent biologists in the 1960s and early 1970s, including George C. Williams, W. D. Hamilton, and Robert Trivers, synthesized findings with their own ideas into influential books about the evolution of human behavior—*Sociobiology* (Wilson 1975) and *The Selfish Gene* (Dawkins 1976), respectively. Originally dubbed sociobiology, the field later became known as evolutionary psychology. Although widely regarded as groundbreaking, these publications sparked strong objections from many scholars (particularly in the social sciences) who supported the decades-long view that a newborn mind is primarily a "blank slate" (Pinker 2003) and is shaped almost entirely by



a Marc J. Defant (defant7@gmail.com) is a professor of interdisciplinary studies at the University of South Florida.

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culture and society.[1] A particularly controversial aspect of Dawkins's work was his portrayal of genes as drivers of organismal behavior aimed at ensuring their own continued survival across generations. Dawkins did not suggest that genes are conscious entities capable of selfishness; rather, he proposed that genes are the ultimate beneficiaries of successful reproduction. His position, however, has often been misunderstood or misrepresented.

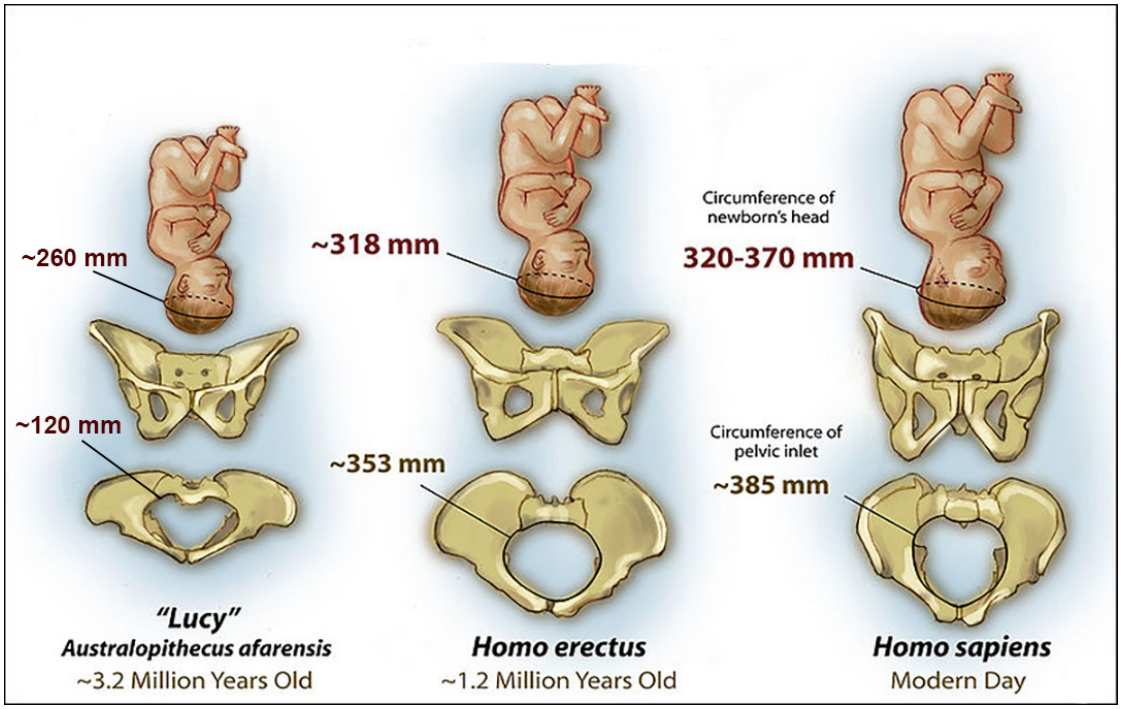
## A Brief Introduction to Evolutionary Psychology and the Patriarchy

Some academic communities have remained skeptical of evolutionary psychology research, partly due to perceived conflicts with their broader ideological or political viewpoints. Robert Wright (1994, 5) succinctly characterized this tension, observing that "the new Darwinian social scientists [i.e., evolutionary psychologists] are fighting a doctrine that has dominated their fields for much of this [twentieth] century: the idea that biology does not much matter—that the uniquely malleable human mind, together with the unique force of culture, has severed our behavior from its evolutionary roots; that there is no inherent human nature driving human events, but rather that our essential nature is to be driven." In a similar vein, the influential evolutionary psychologists Leda Cosmides and John Tooby (1992) referred to this perspective as the "Standard Social Science Model."

Evolutionary psychology provides a biological framework for understanding sex-based differences in human behavior and draws from a variety of fields, including biology (hormones and fetal development), economics, neurology, and so on. Central to this perspective is the asymmetry in reproductive investment: males produce abundant sperm and can father multiple offspring in a short period, whereas females produce limited eggs, must endure pregnancy, and often face the prospect of raising children with limited paternal support. Consequently, women tend to adopt more cautious mating strategies, while men often seek more frequent opportunities for reproduction (Buss 2019). Although sociocultural and economic factors modify how these predispositions manifest in modern contexts, the fundamental insight of evolutionary psychology is that biological constraints on reproduction shape behavioral differences between men and women in ways that remain relevant for economic analysis of decision-making, risk-taking, and resource allocation. As we shall see, this fundamental biological distinction between men and women—shaped over hundreds of thousands of years of evolution in hunter-gatherer societies—remains with us today.

1 At a 1978 American Association for the Advancement of Science meeting, during a discussion of E. O. Wilson's theory of sociobiology, a female protester protesting his theories, which she and others believed promoted racist ideas, poured a pitcher of water over Wilson's head while shouting accusations of racism; this incident became a famous moment in the debate around sociobiology.

Figure 1. Evolution of the pelvic bones (side and top) and fetal head circumference from *A. afarensis* to *H. sapiens*




*Source*: After Deretsky (2008).

Modern culture, having developed over a relatively short few thousand years, has not had sufficient time to significantly alter these ingrained aspects of human nature.

The 300 percent increase in brain size among our hominin ancestors—beginning with *Australopithecus* some 4 to 7 million years ago—occurred in a remarkably short span from a geological perspective. While bipedal australopithecines had brains only slightly larger than those of today's chimpanzees, our more direct ancestors in the genus *Homo* doubled their brain size starting about 1.2 million years ago. Numerous hypotheses address the mechanisms behind this expansion, and the debate is ongoing (Bailey and Geary 2009). What is clear, however, is that larger brains brought significant consequences for both infants and their mothers (figure 1). Because the birth canal can only accommodate fetuses with brain sizes up to approximately 60 percent of adult brain weight (Hublin and Coqueugniot 2006), human infants must be born before reaching full neurological maturity, which contributes to the well-documented complications of human childbirth (Trevathan 2017). Infants undergo only about 25 percent of their total brain development in utero; the remaining 75 percent occurs outside the womb, demanding a high level of maternal care in hunter-gatherer communities (Perry 2002; Walsh 2013). This extended period of infant development, in turn, likely played a critical role in fostering pair bonding and substantial paternal investment in offspring—somewhat of a rarity across much of the animal kingdom (Trivers 1972).

The concept of sexual selection, including women's preference for men who provide paternal investment, traces its origins to Charles Darwin. He observed that certain male traits—such as the peacock's extravagant feathers—seemed to offer no clear survival advantage and, in some cases, even appeared detrimental. For instance, the vivid red plumage of male cardinals can make them more conspicuous to predators. Darwin also noted that morphological differences between males and females can be striking in some species, leading him to conclude that sexual selection produces traits distinct from those shaped by natural selection.

Darwin proposed two primary mechanisms of sexual selection, both of which enhance offspring fitness. The first is competition within a single sex (intrasexual competition). For example, male gorillas, huge compared with the females, engage in physical contests for access to them, and the victorious male passes on his genes. Sexual selection favors large males. Male gorillas are between 1.5 and 2 times as large as female gorillas, whereas human males are only 1.15 times as large as females, suggesting that physical male-male competition has been limited among humans (Pinker 2003; Buss 2019; Wright 1994). As Robert Wright (1994, 90) notes: "Sexual dimorphism is a good index of the intensity of sexual selection." The second mechanism is preferential mate choice (intersexual selection). A well-documented case is the weaverbird, the males of which build elaborate nests to attract females. When a female approaches, the male may hang upside down and energetically flap his wings to invite inspection of his nest. If she deems the nest unsuitable, she will reject it—and the male will typically dismantle the structure and rebuild from scratch in hopes of winning her approval. By being choosy, the female effectively increases the likelihood that her offspring will inherit favorable traits, thus improving their chances of survival (Collias and Collias 1970).

Like weaverbirds, human females interpret many "signals" in choosing a mate.[2] One of the more important characteristics women evaluate, particularly when they marry, is male parental investment. Evolutionary psychologist David Buss (2019, 101–2) summarizes the advantage (or disadvantage) for women: "A woman in our evolutionary past who chose to mate with a man who was flighty, impulsive, philandering, or unable to sustain a relationship found herself raising her children alone and without benefit of the resources, aid, and protection that a more dependable mate might have offered. A woman who preferred to mate with a reliable man who was willing to commit to her would have had children who survived, thrived, and multiplied."

2 It is important to recognize that males also participate actively in mate selection. A well-documented criterion influencing male choice is female physical attractiveness, which often serves as a proxy for overall health, fertility, and genetic quality. From an evolutionary perspective, features such as facial symmetry, clear skin, and certain waist-to-hip ratios are frequently interpreted as reliable indicators of reproductive potential. Although cultural standards of beauty can vary widely, the underlying biological impetus remains consistent: by favoring partners whose attributes signal high fertility and robust health, males enhance their likelihood of producing viable offspring and thus promote the propagation of their genetic lineage (Buss 2019).

The concept of patriarchy has been central to discussions on gender dynamics, often framed as a sociopolitical system that perpetuates male dominance and female subordination. As of 2023, women held only 10.4 percent of chief executive officer (CEO) positions within Fortune 500 companies, with fifty-two female CEOs, and represented only 31.5 percent of CEOs in the broader US corporate landscape (Anderson 2024; Fuhrmans 2024). This data underscores the persistent gender disparity in corporate leadership roles across the United States. Feminists point to such statistics to support their claims, emphasizing the need for continued efforts to address systemic barriers and promote gender equity in executive positions. This interpretation, rooted in feminist theory, views patriarchy as a social construct designed to maintain power imbalances between genders, with men controlling resources, leadership roles, and societal structures. Traditional feminist theorists argue that these structures systematically disadvantage women, leading to issues like the gender pay gap, the glass ceiling, and underrepresentation in leadership roles (MacKinnon 2006; Dworkin 1976; Brownmiller 1975; Baumeister and Twenge 2002; Inglehart and Norris 2003). However, recent research from disparate fields like evolutionary psychology, economics, and biology (specifically in the area of hormones) presents a contrasting view that challenges this narrative by examining gender roles through the lens of adaptive behaviors (Buss 2019; Stoet and Geary 2018; Archer 2006).

From an evolutionary standpoint, gender roles and behaviors can be seen as the result of adaptations that enhance survival and reproductive success. Evolutionary psychology posits that certain traits have developed over millennia due to sexual selection, where males and females evolved distinct strategies to maximize their reproductive success (Trivers 1972). Traits such as competitiveness, resource acquisition, and risk tolerance in males have evolved to meet the demands of both environmental survival and mate attraction (Schmitt 2005). Conversely, females have evolved traits that prioritize caregiving, stability, and social cohesion, essential for offspring survival (Buss 2019; Wood and Eagly 2002). These differences, according to evolutionary scientists, underpin modern masculine and feminine gender behavior.

This article addresses three core areas. First, it examines evolutionary psychology's explanations for gender roles, emphasizing how sexual selection has historically shaped male and female behavior in hunter-gatherer societies (Trivers 1972; Buss 2019). Second, it evaluates the gender pay gap and the glass ceiling through economic and psychological data, demonstrating that differences in career choices and risk tolerance contribute significantly to these phenomena (Goldin 2014; Blau and Kahn 2017; Babcock and Laschever 2003). Finally, it explores how biological factors, including hormonal differences, shape contemporary career preferences, particularly in high-stress or leadership roles, highlighting the ongoing influence of evolutionary dynamics in modern contexts and counteracting the emphasis on parity

over merit (Archer 2006; Sapienza, Zingales, and Maestripieri 2009). By synthesizing these findings, the article presents an alternative view of patriarchy as a natural adaptive outcome shaped by evolutionary and biological pressures rather than a construct imposed by men to suppress women. Ultimately, as we shall see, the so-called patriarchy is primarily a result of female choice.

## The Role of Evolutionary Psychology in Understanding Gender Roles

Evolutionary psychology posits that the human brain and behavior evolved in response to the specific demands of survival and reproduction in early human societies. This perspective suggests that many of the behaviors, preferences, and roles commonly associated with men and women today are deeply rooted in our species' adaptive history (Buss 2019; Schmitt 2005). Gender differences in behavior, including risk-taking, competitiveness, and caregiving, are not merely products of cultural expectations but are influenced by evolutionary pressures that promoted survival and reproductive success (Baumeister and Twenge 2002).

In early human societies, males and females faced distinct reproductive challenges that required different adaptive strategies. Females, who invested significant biological resources in pregnancy, childbirth, and child-rearing, developed traits that favored stability, selectiveness in mate choice, and caregiving skills. These behaviors ensured that their children survived and thrived, thereby passing on their mother's genetic lineage (Trivers 1972; Wood and Eagly 2002). Males, in contrast, faced reproductive challenges centered on competing for access to mates. Traits such as physical strength, competitiveness, and resource acquisition became desirable, as they signaled to females a male's ability to provide, thus leading to the development of characteristics often labeled as "masculine," like risk-taking and assertiveness (Archer 2006). Though sometimes viewed negatively in modern contexts (e.g., toxic masculinity), these traits originated as adaptive strategies that historically benefited not only the individual but also the family and community (Schmitt 2005).

Sexual selection thus provides a foundation for understanding the behavioral traits associated with each gender, suggesting that men and women are not arbitrarily assigned roles by society but have developed tendencies that reflect long-standing survival needs. This evolutionary perspective counters the argument that gender roles are purely social constructs, instead presenting them as biologically influenced adaptations that enhanced reproductive success across generations (Buss 2019; Trivers 1972).

Parental investment theory, proposed by evolutionary biologist Robert Trivers (1972) further elucidates gender differences in reproductive behavior. According to this theory, the sex that invests more in offspring (females

in most species) will be more selective in choosing mates, while the lower-investing sex (typically males) will compete for access to the higher-investing sex. This theory aligns with observed human behavior, where women, with their greater biological investment in child-rearing, are generally more selective in mate choice (Trivers 1972; Baumeister and Twenge 2002). Gender characteristics observed universally across cultures suggest inherent factors beyond social constructs at play.[3] Women often seek partners with power, resources, or the potential to attain them, a preference that persists even among successful women in competitive fields, who typically choose high-status partners over those in lower-paying occupations (Walker et al. 2020).

This selectivity influences male behavior, as men evolved to compete for female attention and approval, which involved developing traits such as assertiveness, strength, and status acquisition. These behaviors are observable in various forms of human interaction today, particularly in competitive and high-stakes environments (Archer 2006). Thus, behaviors typically associated with a "patriarchy" can be explained as an outcome of female selection favoring traits in males correlated with providing protection, resources, and support for offspring. Far from being an instrument of male control, these gendered behaviors reflect strategies that have historically benefited both men and women (Schmitt 2005).

Understanding gender roles through evolutionary psychology offers insight into present-day societal structures. Many behaviors traditionally associated with men, such as leadership and risk-taking, have roots in evolutionary demands for resource acquisition and protection (Buss 2019). Meanwhile, traits like nurturing and cooperation, often emphasized in women, stem from the survival needs associated with child-rearing (Wood and Eagly 2002).

## The Gender Pay Gap and the Glass Ceiling: Myths, Realities, and Economic Choices

The gender pay gap is one of the most discussed indicators of perceived gender inequality and is often cited as evidence of a patriarchy and of systemic discrimination against women. The self-described feminist economists Xuan Pham, Laura Fitzpatrick, and Richard Wagner (2018, 911) state:

> The two overarching institutions that enable the persistence of the GPG [gender pay gap] in the USA are capitalism and patriarchy. Capitalism is a production system . . . driven by the profit motive, meaning firms seek to cost minimize. If employers can pay whole segments of workers lower wages,

3 Cross-cultural research in evolutionary psychology is vital for identifying universal traits, distinguishing biological adaptations from cultural influences, and testing the robustness of hypotheses. It helps avoid cultural biases, explores how behaviors adapt to different environments, and ensures findings reflect universal evolutionary mechanisms rather than context-specific phenomena. This approach strengthens the validity and generalizability of the field's conclusions.

> it is easier to boost profit margins and preserve capitalist production. The incentive to do this is quite powerful and a society that relegates women to a lesser position through non-labor market forces enhances the potential to increase exploitation of women through differential wages relative to men. . . . Capitalism alone cannot create the GPG, however. The other crucial institution, patriarchy—allowing for gender-based disparate treatment—has deep roots in US society. At the country's founding, women were no more than the property of men.

A more nuanced analysis of economic data indicates that the pay gap cannot be attributed to factors such as capitalism and the patriarchy, which, from an evolutionary psychology perspective, are interpreted as emergent outcomes rather than deliberate mechanisms of discrimination. Differences between men and women in occupational choices, hours worked, risk tolerance, and work-life balance preference contribute significantly to wage disparities (Blau and Kahn 2017; Goldin 2014). Understanding these factors through economic and psychological lenses offers a clearer, more comprehensive view of the gender pay gap and its roots in individual preferences and adaptive strategies (e.g., Bolotnyy and Emanuel 2022; Cook et al. 2021).

A primary contributor to the gender pay gap is occupational choice. Research has consistently shown that men and women gravitate toward different fields and types of jobs, leading to discrepancies in average wages (Bolotnyy and Emanuel 2022; Cook et al. 2021; Block 2005). For instance, more men than women work in high-paying industries like engineering, technology, and finance, while women are more likely to pursue careers in education, healthcare, and social work, which typically offer lower wages but provide greater flexibility and job security (Blau and Kahn 2017; Hakim 2000). This occupational segregation is a crucial factor in the gender pay gap.

Economic studies support this claim, revealing that the wage gap narrows significantly when controlled for industry and occupation. For example, a study by Claudia Goldin (2014) highlights that for men and women with the same job and with similar work hours, wage disparities decrease substantially. This finding challenges the notion that the gender pay gap is solely the result of bias, instead suggesting that differences in career choices play a major role.

Furthermore, men are more likely to work in physically demanding or dangerous occupations, such as construction, oil and gas extraction, and logging, which offer wage premiums as compensation for the increased risk (Petersen and Saporta 2004). Women, by contrast, tend to avoid high-risk jobs, opting instead for safer and more stable professions. This distinction not only contributes to wage differences but also reflects differences in risk tolerance between genders (Browne 2006).

Another significant factor influencing the pay gap is the difference between men and women in hours worked and career longevity. Studies indicate that, on average, men work longer hours than women, especially in fields with substantial financial incentives for extended work hours. Men are more likely to take on overtime and seek promotions that require a higher time commitment, which leads to higher cumulative earnings over time (Goldin 2014; Bolotnyy and Emanuel 2022; Cook et al. 2021).

A notable Stanford study of over one million Uber drivers offers a compelling natural experiment on gender pay differentials (Cook et al. 2021). Because Uber pays via a fixed, nonnegotiable formula—without promotions, overtime, or benefits—and lets drivers choose when and where to work, the platform inherently limits both managerial bias and customer discrimination (ratings and rider preferences for male versus female drivers are statistically indistinguishable). Nonetheless, men earn about 7 percent more per hour than women. Three main factors—none of which involve discrimination—explain this gap. First, men drive faster and thus complete more trips per hour. Second, Uber pays a risk premium for work in high-crime or late-night areas, where men more frequently drive. Third, men accumulate greater experience by logging more hours each week and are less likely to quit, benefiting from nuanced knowledge about routes, scheduling, and ride acceptance. As the Stanford team concludes, even in fair and flexible job markets, a gender pay gap can persist because women often spend more time on unpaid responsibilities like childcare and housework. This can lead them to work fewer hours, choose lower-paying but more flexible jobs, or take career breaks, all of which affect their earnings compared to men.

Many women, especially those with children, prioritize work-life balance and seek out part-time roles or jobs that offer flexibility. Research shows that women are more likely to reduce their working hours or temporarily leave the workforce to accommodate family responsibilities, which impacts long-term earnings and career advancement. Economists Francine Blau and Lawrence Kahn (2017) found that career interruptions related to caregiving responsibilities have a pronounced effect on lifetime earnings, further contributing to the wage gap. This pattern highlights how personal priorities and familial roles affect economic outcomes for each gender.

Beyond occupational choice and hours worked, risk tolerance and negotiation behavior are also crucial factors in the gender pay gap. Studies have shown that men tend to exhibit higher risk tolerance, which aligns with a greater likelihood of pursuing high-stakes, high-reward positions (Sapienza, Zingales, and Maestripieri 2009). Fields such as finance, entrepreneurship, and sales, where income can fluctuate significantly based on performance, tend to attract more men. Women, however, often choose positions with fixed salaries, which offer stability but typically lower earning potential. This difference in risk preferences further contributes to gender-based disparities

in pay (Goldin 2014; Blau and Kahn 2017). Negotiation behaviors also play a role. Research has demonstrated that men are more likely to negotiate salaries and pursue raises, which contributes to higher earnings over time. Women, on the other hand, are often less inclined to negotiate assertively (Babcock and Laschever 2003). Men initiate salary negotiations more frequently than women do, leading to higher starting salaries and accelerated wage growth over their careers. This reluctance to negotiate can have a cumulative impact on women's earnings, exacerbating the pay gap over time (Babcock and Laschever 2003).

The role of personal preferences and work-life balance in the gender pay gap cannot be overlooked. Women tend to value flexibility and lower-stress work environments, often choosing roles that allow for a better balance between personal and professional life. This preference for balance influences their career choices and contributes to their receiving lower wages than men, who are more likely to prioritize career progression and higher-paying roles even if these come at the cost of decreased personal time and increased stress (Hakim 2000).

A study from the Pew Research Center (2013) showed that women are more likely to adjust their careers to accommodate family needs, with many choosing jobs with flexible hours or remote options. This preference reflects an adaptive strategy that aligns with caregiving roles, which have been crucial for offspring survival across human evolution. In today's economy, this manifests as a preference for stability over high-paying but demanding roles, further explaining wage differences. Furthermore, this often leads to a synergetic family relationship. In many households, women prioritize family responsibilities over professional advancement, thereby enabling their partners to dedicate more time to career development and financial support for the family.

Israeli kibbutzim,[4] first established in 1909, offer a striking natural experiment in attempting to eliminate perceived patriarchal structures. Early founders from Eastern Europe sought to abolish traditional marriage, motherhood, and any social or economic distinctions between men and women, believing these differences were purely cultural constructs. Children were raised communally away from parents, and men and women performed identical jobs—even in agricultural fields requiring heavy labor. In theory, this blueprint was supposed to produce a society free of gender-based roles and expectations (Spiro 1996).

4 An Israeli kibbutz is a communal settlement, traditionally based on agriculture, where members share property, work, and resources collectively while emphasizing social equality.

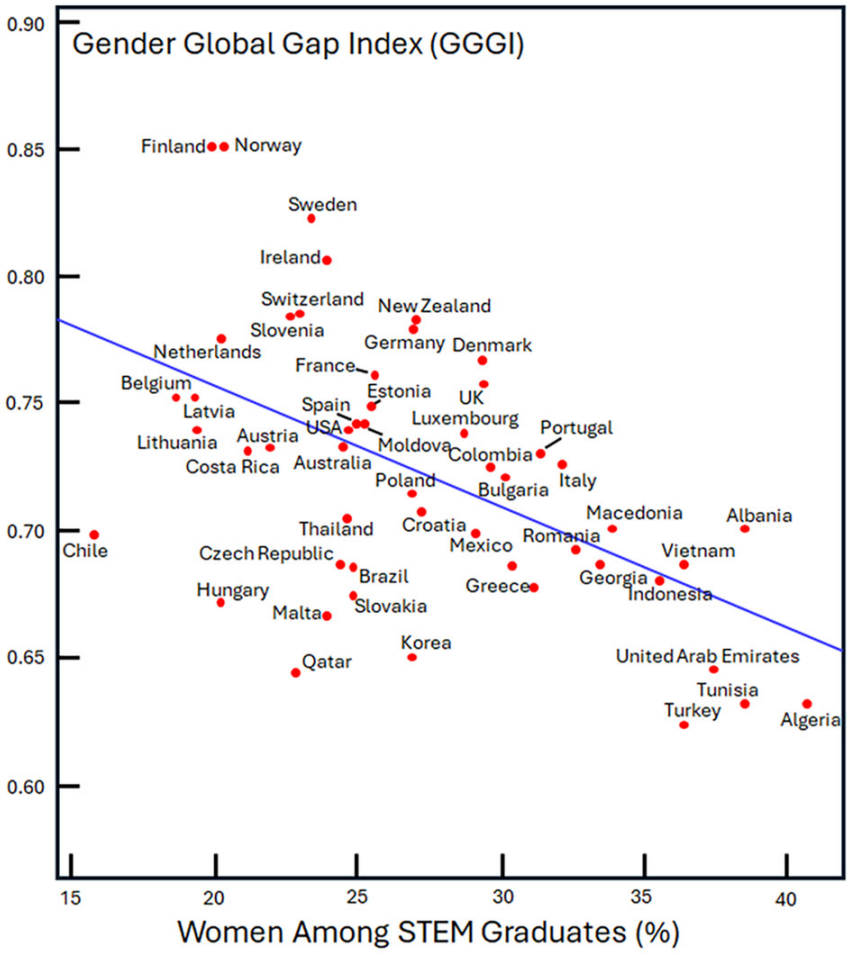
In practice, however, the kibbutzim gradually reverted to traditional patterns. Women gravitated toward child-rearing and less strenuous work, while men gravitated toward physically demanding or leadership roles. Mothers increasingly rejected communal child-rearing, pressed for more family-centered living arrangements, and embraced feminine expression (e.g., wearing makeup). Over time, marriages were formalized and private homes replaced shared quarters. Anthropological research shows that these changes did not arise from male domination; rather, they emerged because women willingly chose roles and lifestyles aligned with biological imperatives and personal preferences (Spiro 1996). Ultimately, the kibbutz experiment underscores that attempts to engineer total gender neutrality can founder on innate differences—demonstrating how, even in highly controlled settings, men and women tend to form social structures resembling those in broader society.

The concept of the glass ceiling, often cited as a barrier preventing women from reaching top-level positions, is influenced by both societal expectations and personal priorities. Men's higher risk tolerance and willingness to negotiate for higher pay and promotions contribute to their prevalence in leadership roles. Women, in contrast, often prioritize job stability and work-life balance, which can lead to fewer opportunities for career advancement. Biological influences, such as hormonal impacts (see below) on risk-taking and competitiveness, further explain these trends, revealing that the glass ceiling is not solely an imposed barrier but an outcome of differing career motivations and behaviors between genders (Archer 2006; Babcock and Laschever 2003).

Recent policies and grants (e.g., National Science Foundation funding initiatives for women in science, technology, engineering, and mathematics [STEM]) often rest on the assumption that systemic discrimination drives women away from technical fields. However, a comprehensive study by psychologists Gijsbert Stoet and David Geary (2018) challenges this premise (figure 2). Drawing on data from the Programme for International Student Assessment (PISA; OECD 2016), they discovered that countries scoring highest on the Global Gender Gap Index (GGGI)[5]—such as Finland, Norway, and Sweden—paradoxically have the lowest percentage of women completing STEM degrees. Conversely, nations with lower GGGI scores, including Algeria, Turkey, Tunisia, and the United Arab Emirates, produce a significantly higher percentage of female STEM graduates. Stoet and Geary (2018) attribute this counterintuitive trend to women making different

5 GGGI is a measure of the degree of parity between men and women on fourteen indicators, such as earnings, seats in parliament, tertiary enrollment ratio (the ratio of women relative to men enrolled universities), life expectancy, etc., with 1 designated as total parity on a scale of 0 to 1.

Figure 2. Gender equality (GGGI) versus the percentage of women graduating from STEM-related fields by country




*Source*: Stoet and Geary (2018).

*Notes*: GGGI of 1.0 = gender parity. The line represents the best-fit least squares regression.

academic and career choices based on personal interests and perceived strengths rather than being steered away from STEM by discrimination or discouragement.

Stoet and Geary's "educational-gender-equality paradox" is reinforced by broader economic findings on female choice and risk aversion. Women worldwide demonstrate comparable or superior math and science aptitude to men, yet they tend to favor fields involving social interaction or nurturing roles, such as nursing or teaching, which often allow greater schedule flexibility. Attempts to legislate gender outcomes—like Norway's boardroom quotas—have produced negligible improvements for women in managerial positions, while sometimes prompting corporate flight to avoid the mandates (Ryder 2014). In sum, while policymakers are right to promote equal access and opportunity, growing evidence indicates that women's career decisions are more strongly shaped by personal preferences and opportunity costs than by discrimination.

## Hormonal Influences on Career Preferences

Evolutionary psychology is primarily concerned with the behavioral differences observed between males and females—often referred to as masculine or feminine behaviors—and aims to explain how these distinctions emerged through evolutionary processes. Hormones such as testosterone and estrogen significantly influence these sex-specific behaviors: in addition to guiding the development of secondary sexual characteristics, they shape many behavioral patterns traditionally labeled as masculine or feminine. Recognizing that hormones play a critical role in determining gender-related traits challenges the idea that gender is a social construct; rather, the hormonal basis underscores a fundamental biological mechanism that evolved to promote mutual attraction between males and females. At the same time, the interplay of evolutionary psychology and hormonal influences has social ramifications, creating distinct physical and emotional differences that can generate misunderstandings about how society treats men and women (Browne 2006; Baumeister and Twenge 2002).

Hormones, honed by evolutionary adaptations, are one of the primary biological influences that impact behavior and preferences, particularly regarding career decisions and workplace dynamics. Testosterone, a hormone present in both men and women but in much higher levels in men, has been linked to behaviors associated with competitiveness, assertiveness, and risk-taking. Research by John Archer (2006) shows that testosterone levels are strongly correlated with a willingness to engage in competitive and high-stress situations, which aligns with men's greater likelihood of pursuing careers in fields such as finance, engineering, and technology.

On the other hand, estrogen and oxytocin, which are present in higher levels in women, have been associated with nurturing behaviors, social bonding, and a preference for cooperative environments. This hormonal profile aligns with women's tendency to gravitate toward careers that emphasize collaboration and caregiving, such as education, healthcare, and social work (Wood and Eagly 2002). These fields often provide work environments that value empathy, patience, and interpersonal skills—traits that have historically supported child-rearing and community cohesion.

The influence of hormonal differences on career preferences underscores the complex relationship between biology and occupational choice. These hormonal impacts are not absolute determinants but predispositions that influence the types of work environments and challenges that men and women are more likely to find appealing or fulfilling (Sapienza, Zingales, and Maestripieri 2009; Hines 2010).

Risk tolerance, which has been found to correlate with testosterone levels, is a trait influenced by biological differences, carrying significant implications for career preferences (Sapienza, Zingales, and Maestripieri 2009). As an adaptive

trait, risk tolerance varies significantly between genders due to evolutionary pressures. Historically, males,[6] who were often hunters and protectors, developed a higher tolerance for risk, as this trait increased their ability to secure resources and protect their communities. Today, this manifests as a preference for high-stakes, high-reward career paths, such as entrepreneurship, finance, and technology (Petersen and Saporta 2004).

In contrast, women, who have been primary caregivers throughout evolutionary history, are generally more risk averse (lower testosterone and higher estrogen and oxytocin than men) (Sapienza, Zingales, and Maestripieri 2009). This trait aligns with the adaptive need to ensure stability and security for themselves and their offspring. Consequently, women are more likely to choose careers that offer steady incomes, job security, and less-volatile work environments, such as healthcare, education, and administration. These preferences, though shaped by biological influences, reflect strategies that promote family stability and community well-being, even in modern settings (Browne 2006).

Biological influences also extend to preferences for work-life balance, with evolutionary psychology providing insight into why these preferences differ by gender. Women are more likely to prioritize work-life balance and choose flexible work arrangements that allow them to accommodate family responsibilities. This pattern aligns with evolutionary roles where women, as primary caregivers, adapted to prioritize stability, safety, and predictability, traits that are essential for raising offspring successfully (Hakim 2000).

Research by Catherine Hakim (2000) on lifestyle preferences found that women disproportionately value flexibility and work-life balance compared to men, with a higher percentage of women opting for part-time roles or jobs that offer remote work options. These preferences and related hormones, though adaptable to modern contexts, reflect a biological predisposition toward caregiving and familial stability.

For men, the evolutionary emphasis on resource acquisition has contributed to a tendency to prioritize career advancement and financial gain over work-life balance. This is evident in their greater likelihood of accepting long hours, high-stress roles, and travel-heavy positions that increase earning potential but reduce personal time. These decisions align with an adaptive history where men were incentivized to maximize resource acquisition to support family and community needs (Sapienza, Zingales, and Maestripieri 2009).

6 On average, men's testosterone levels range from 8 to 30 nmol/L, while women's levels are significantly lower, typically between 0.5 and 2.4 nmol/L, highlighting a substantial hormonal difference that influences muscle mass, fat distribution, and other physiological traits.

## Conclusion: Reassessing Patriarchy through Evolutionary and Biological Perspectives

This article has presented a scientific analysis of patriarchy, reinterpreting it not as a social construct imposed by men to oppress women, but as an adaptive structure that has evolved to fulfill both biological and social needs. Through the examination of gender roles through evolutionary psychology, economic choices, and biological (hormonal) influences, it becomes evident that many behaviors and preferences traditionally associated with "the patriarchy" reflect adaptive strategies that have evolved to maximize survival and reproductive success (Buss 2019; Schmitt 2005). These adaptive traits and behaviors, shaped by millions of years of evolution, influence modern gender dynamics and contribute to societal structures.

Patriarchy, as viewed through this evolutionary framework, is not a rigid, oppressive system but a natural outcome of complementary roles that men and women have adopted throughout history. Traits such as male competitiveness, risk tolerance, and resource acquisition are seen as responses to environmental and reproductive challenges rather than as tools of subjugation. Likewise, female tendencies toward caregiving, cooperation, and stability are seen as supporting survival strategies that benefit family and community cohesion (Baumeister and Twenge 2002; Wood and Eagly 2002). Understanding patriarchy in this context challenges the notion that gender roles are solely products of social conditioning.

By reframing patriarchy through a scientific lens, this article provides a broader understanding of gender roles, one that acknowledges the complexity of evolutionary influences and respects the adaptive strategies developed by both men and women. Recognizing these influences offers a path forward for building a society that values both equality and biological diversity, where gender differences are understood as strengths rather than barriers. Gender pay gaps, glass ceilings, and fields dominated by men are currently viewed as the result of systemic discrimination. Ironically, traits often labeled as "toxic masculinity" (e.g., aggression, competitiveness, risky behavior) by proponents of the patriarchy narrative have, in fact, evolved directly through or as by-products of female-driven intersexual selection over time.

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