An In-depth Exploration of Higher Education's Impact on the Role of Employment, and Wage Disparities in the Modern Workforce

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In increasing amount of empirical research in gender studies predominantly concentrates on the representation of individuals based on gender within various sectors. This study employs a survey-based descriptive approach to investigate gender dynamics among participants completing or in the final year of their master's degree programs at public universities in Punjab, with a focus on gender, education, and employment status. The sample includes 400 individuals from each category: those who completed their master's and those in the final year. Comprehensive statistical analyses, including multiple regression, correlation, t-test, and ANOVA, were applied to the collected data and presented using tabular and graphical formats. Results highlight wage variations across personal and job characteristics, demonstrating disparities in rural and urban areas, social groups, marital status, and education levels. Occupationally, technicians and clerical workers face notable differentials. The study utilizes documented salaries, dividing total pre-tax pay by annual work hours, to prevent assumptions about income inequality. Regression coefficients, presented as percentage alterations, account for variables such as race/ethnicity, citizenship, age, metropolitan status, and occupation. The study classifies students' scores into disagreed and agreed categories, revealing a majority strongly agreeing (79%) that higher education is for the world of work. Gender differences in perceiving higher education as a predictor of employment show minor but significant distinctions. The study delves into gender inequality in advanced degrees, highlighting a consistent pattern of disparities across income brackets. Despite progress in closing the gender wage gap in lucrative professions, disparities persist. Further research into specific professions indicates a narrowing gender wage gap, emphasizing the need for comprehensive evaluations of overlooked factors contributing to gender-based wage gaps. In conclusion, the study underscores the multifaceted nature of gender-based wage disparities influenced by various personal, educational, and occupational factors. It advocates for continued research, especially focusing on high-income earners, to address the persistent gender pay gap.

Keywords: Gender Studies, Wage, Employment Status, Income Brackets.

Introduction:

Educational achievements have proliferated worldwide across various developmental stages, but there remains much work to be done in advancing educational development. Education serves as a social mechanism, linking individuals to diverse aspects of life and enabling them to tackle life's tasks. Efficient students contribute to global progress, fostering country development and competency generation. For many, higher education is a requisite for success in the workforce, aiming to transform students by enhancing learning skills, behavior, and lifelong empowerment [1]. However, controversially, employability does not always seem to be the primary goal of higher education for students, and not every individual perceives higher

education as life preparation for the working world. Despite institutions nurturing students for the world of work, the environments of institutions and the working world differ, and institutions do not guarantee student employment. Over the past two decades, a major emphasis has been placed on higher education to spur national growth, revitalize economic foundations, and address new global challenges. The relationship between higher education and employment has gained attention for policy-making and research. Researcher [2] proposes that countries grappling with long-term economic crises and complex challenges could find solutions by prioritizing education for the world of work. The youth of a country need preparation for employment to contribute to nation-building. Despite the rising importance of employment, many highly qualified students remain jobless for various reasons. Higher education is adapting its objectives to support learners in navigating careers, seizing opportunities, engaging in progressive employment, and gaining a better understanding of their capacities. It plays a crucial role in developing employability skills, enabling students not only to secure jobs but also to bring about changes in the working world and contribute proficiently to development [3][4][5].

The gender wage gap has experienced a significant reduction due to increased female participation in traditionally male-dominated fields, higher educational achievements by women, and their integration into the workforce. From 1980 to 2020, the unadjusted gender pay gap decreased from 0.60 to 0.85, reflecting a notable decline in salary disparities between men and women. Despite this overall improvement, substantial income distribution discrepancies persist. While the gender wage gap has narrowed on the whole, there remains a considerable disparity, particularly among individuals with high and moderate salaries. Scholars contend that the continued existence of the wage gap among high earners can be attributed, at least in part, to substantial shifts in inequality dynamics [6]. The growth in top incomes has outpaced the increase in lower-paid earnings, contributing to this disparity. According to the findings of this research, men primarily benefit from the recent rise in well-paid incomes, thereby perpetuating the gender wage gap overall [7][8].

The financial benefits associated with obtaining a college degree are not distributed equally between genders, primarily due to the uneven allocation of well-paid employment opportunities for men and women. Specifically, men in the highest 10 percent income bracket have seen a more rapid increase in financial gains resulting from a college education compared to their female counterparts. Given that a significant proportion of high-income individuals hold college degrees, it becomes crucial to specifically examine the impact of educational processes on the widening income gap among the wealthiest individuals. While previous studies and public discourse on the gender wage gap have often centered on tactics for women to enhance their incomes, this analysis focuses on labor market outcomes. It specifically explores how the development of women's human capital influences their earning potential and career choices. Throughout this investigation, we scrutinize the influence of gender disparities in educational backgrounds on the discrepancy in high-earning salaries and assess the feasibility of improving women's educational achievements to address the gender wage gap. The choice of academic field significantly affects the financial benefits derived from pursuing higher education and is intricately linked to students' prospects for future employment [9]. Despite women generally having a higher likelihood of obtaining a bachelor's degree, enduring gaps between genders persist in some academic fields. Research indicates that the segregation of sexes across various academic fields contributes to the earnings disparity between genders.

Furthermore, the variation in earnings among different fields of study can be as substantial as the overall discrepancy between individuals holding a high school diploma and those with a bachelor's degree. Thus, the gender earnings gap at the highest income levels may, in part, be attributed to the division of academic disciplines, especially within the most lucrative sectors [10]. Scholars argue that obtaining a postgraduate degree is crucial to fully understanding the extent of disparity among the wealthiest individuals. Currently, women are earning advanced

degrees, including master's, professional, and doctorate degrees, at levels equal to or greater than men, particularly in fields associated with higher earning potential. This suggests that acquiring advanced degrees can empower women to achieve greater economic parity with men of similar educational backgrounds [11][12].

However, empirical data indicates a gender disparity in the benefits derived from acquiring advanced degrees, raising questions about whether women's pursuit of higher education effectively narrows the imbalance in high-wage earnings. Accumulated research suggests that gender disparities in acquiring and benefiting from skills and knowledge may be the primary cause of the gender wage gap among high earners [13].

This paper evaluates the extent to which disparities in gender representation in higher-level educational qualifications and academic fields contribute to the ongoing wage disparity between highly compensated male and female college graduates. Recent research has highlighted a rise in gender disparity among college employees at the uppermost echelon, emphasizing the importance of understanding pay inequality among college-educated individuals [14][15].

The precise mechanisms within higher education and their potential impact on these achievements remain unclear. This investigation is crucial for understanding how women can potentially address prevailing salary inequalities by altering the characteristics of their educational accomplishments. Data from the American Community Survey and Census microdata are employed, spanning 20 waves of data collection since 1990 for advanced degrees and 2009 for fields of study. The research focuses on specific segments of the wage distribution where these qualities play a more or less significant role in explaining gender wage gaps, with a special emphasis on those with high incomes [16]. Decomposition models are used to analyze the impact of demographic differences on the choice of academic discipline and the attainment of higher degrees.

The central issue addressed is the salary disparities attributed to gender. The study evaluates the potential impact of women's efforts to pursue further education, such as advanced degrees or explore new areas of study, in effectively eliminating gender-based wage gaps among college graduates [17]. Over the years, women have witnessed substantial salary growth relative to men, with the female-to-male salary ratio increasing from about 0.60 in the 1970s to approximately 0.85, remaining stable since the early 2000s. This progress is evident in the increased gender equality observed in higher education attainment and workforce engagement. Currently, women hold around 57% of bachelor's degrees, surpassing men in recent years. The percentage of female college graduates successfully obtaining employment has risen from 59% in 1970 to 80% in 2007. Despite these advancements, there has been a noticeable slowdown in the rate at which men's and women's salaries have increased over the last twenty years, even with changes in women's education and their participation in the workforce [18].

While there are overarching trends in the disparity between men's and women's earnings, notable variations in income inequalities complicate the understanding of gender-based wage inequality. Researchers find it challenging to fully grasp the intricacies of this issue, particularly as concerns arise regarding the stagnant growth in salaries based on gender, contributing to a decline in the female-to-male wage ratio. A significant inconsistency lies at the top of the compensation scale, where income disparity has increased among the highest-earning individuals since the 1970s. Despite the uniformity of the initial ratio of women's to men's pay across various salary tiers, it has consistently remained below 0.80. It is suggested that alterations in the configuration of wage patterns, particularly the substantial surge in compensation for those with the highest salaries, contribute to the gender wage gap among individuals with high incomes [19]. This article explores higher education as a potential mechanism through which disparities among the most affluent individuals, irrespective of gender, manifest. While there is recognition of the link between higher education and inequality, only a small number of social scientists directly attribute the current wage gap to individuals with high earnings and extensive education.

To understand the factors contributing to the wage gap between genders among high-income individuals, it is crucial to shift attention from the wage dynamics of all workers to specifically those with a college education [20].

In the context of gender remuneration disparities, the increasing number of individuals with substantial salaries highlights a university degree as a pivotal determinant of earning potential for both men and women. In 2013, hourly wages for individuals with college degrees were nearly twice as high as those without, a significant increase from the 85% difference in the 2000s and the 64% difference in earlier decades. Furthermore, recent studies indicate that the compensation growth rate for men in high-ranking college roles surpasses that of women in similar positions [21].

The issue of pay disparity has been a subject of frequent debate, with numerous scholars delving into the causes that contribute to inequality within specific groups. Building upon previous theoretical and empirical research on social stratification, this research area specifically focuses on analyzing the increasing wage gap among recent college graduates [22]. This gap results from a combination of greater financial advantages associated with acquiring advanced degrees and diverse financial benefits linked to different fields of study. The pronounced disparity within this specific group significantly influences overall patterns of wage inequality, particularly at the higher end of the salary spectrum.

Examining the relationship between gender and income disparity among individuals with a college education allows for a targeted evaluation of the factors contributing to gender inequality among those with high salaries. Achieving complete economic parity between women and men is seen as unlikely as long as a significant wage gap persists among well-compensated and highly educated individuals. Understanding the determinants of this disparity is crucial for identifying viable tactics to enhance economic parity [23].

Educational qualifications, including the highest level of degree achieved and the area of specialization at the undergraduate level, play a significant role in determining the gender wage gap among college graduates. Research indicates that the chosen academic discipline is a key predictor of income attainment, with the ability to forecast wage differences similar to those reported between professionals with and without a college education. The existence of gender disparities in majors can be attributed to societal expectations, limitations, and preferences that guide individuals toward specific disciplines based on gender [24][25].

Despite ongoing gender segregation, women have made substantial progress in gaining increased involvement in fields traditionally dominated by men, potentially contributing to a reduction in the gender wage gap. Some scholars suggest that addressing the gender wage disparity among college employees could involve more women opting for STEM majors. The influence of gender segregation in academic disciplines is evident in its effects on the employment and income of adults holding a bachelor's degree or higher. However, it is essential to acknowledge that while the field of study significantly impacts these characteristics, it does not entirely dictate them. [26] Economists often view various areas of study as indicative of disparities in expertise and education that impact job distribution, and the disparities in academic specialism between genders should be notable, considering the increasing number of women pursuing high-paying job prospects [27].

Enrolling in advanced academic programs provides a deeper insight into the gender wage gap among individuals with completed college-level education. While the disparity in college graduation rates between genders is most pronounced among those with a bachelor's degree, women have made strides in pursuing further degrees and professional studies. In 2014, the proportion of women in the United States who had obtained a master's degree surpassed that of males, and women were making progress in attaining professional and doctoral degrees, thereby reducing the disparity with men. Women with advanced academic qualifications may

achieve more salary parity in some industries, gaining increased access to higher-paying roles and professions.

However, evidence suggests that men experience more significant benefits from advanced degrees compared to women, similar to the trend observed with bachelor's degrees. Doctoral examinations indicate that women's average incomes have a lower level of convergence compared to men. These trends suggest that the income difference between genders may vary based on the type of advanced degree, or that gender discrepancies in pay may be influenced by the decisions individuals make when pursuing graduate-level education.

Examining the geographical area, educational achievement at the postgraduate level, and the notable disparity in earnings based on gender is crucial. Previous research has often assumed that characteristics of higher education uniformly influence gender-based wage gaps across income groups, focusing on shared trends [28]. However, some studies have not specifically investigated this issue, lacking substantial theoretical support for this assertion. Substantial data indicates that these mechanisms play a crucial role in the highest incomes. For example, highly skilled women who can earn substantial incomes may benefit financially from the presence of women in traditionally male-dominated fields of study. Previous studies have made similar claims, emphasizing the underrepresentation of women in STEM professions and the choices women make in degree programs leading to highly profitable job prospects.

The theory proposes that among individuals with high wealth, noticeable gender differences exist in the selection of academic majors, exerting a significant influence on overall patterns of inequality. However, evidence suggests that higher education systems may witness a substantial collapse in the top tier of the job market. An audit examination revealed that, despite the common belief that studying English is more financially lucrative, mathematics students faced a greater level of gender discrimination [29]. Men with a comprehensive education may have a greater capacity to earn money than women, as there is evidence of a gender gap in the financial advantages associated with postgraduate degrees.

Research in social psychology has identified potential factors contributing to the income disparity between genders, such as the perception that women possess lesser abilities, dedication, and proficiency compared to males [30]. Hiring decisions for women in professional roles are often determined by assessments of their competency and prospects. Women may face negative consequences even if seen as capable but unlikable, while men are frequently regarded as both competent and agreeable concurrently. These mechanisms impact the categorization into leadership positions, typically involving the most financially rewarding job prospects. The inclusion of women in traditionally male-dominated professions has increased their involvement in roles assessed according to gender-specific criteria.

The precise impact of the chosen academic discipline and the attainment of a postgraduate degree on income variations among individuals with substantial wages remains indeterminate. This study contributes to the understanding of the gender wage gap by examining the potential influence of decreasing gender segregation in academic fields on mitigating gender inequalities among the most highly compensated professionals. It also seeks to ascertain the degree to which disparities in academic disciplines contribute to gender inequity across various income brackets [31].

At the uppermost range of the pay spectrum, a slight impact stemming from the selected area of expertise suggests that gender bias and preconceptions may hold greater importance. The study further examines gender inequality patterns across various advanced degree classifications within the uppermost, intermediate, and lowermost income strata. It aims to provide insights into whether increasing the proportion of women attaining advanced degrees can further reduce the observed earnings gap among high-income individuals.

Methodology:

This study employed a survey-based descriptive approach to investigate the gender dynamics among participants who had either completed their master's degree or were in the final year of their master's degree programs at public universities in Punjab [32]. The study sample comprised 400 individuals who had completed their master's degree and 400 individuals enrolled in the final year of their master's degree programs. The participants were categorized based on their current and previous status, taking into account gender and employment status.

Demographical Information of Participants:

The demographic breakdown included male and female participants in both current and previous student categories, further stratified into employed and unemployed subgroups. A total of 250 males and 250 females participated in the study.

Data Collection Instrument:

A questionnaire, specifically designed by the researchers, was employed to collect information from the participants. The initial questionnaire consisted of 15 items, addressing aspects related to Higher Education and Employment. To ensure the validity of the questionnaire, experts conducted a rigorous review, assigning relevance scores to each item. Items scoring above 53 percent were deemed relevant and retained, resulting in a final instrument of 19 items [33].

Questionnaire Validity and Reliability:

Validity was established through expert reviews, employing a scoring system based on relevance. Items with a relevance score exceeding 79 percent were retained, ensuring content validity. To assess the reliability of the questionnaire, a pilot test was conducted with 50 participants [34]. The reliability coefficient, measured by Cronbach's alpha, was calculated at 0.793, indicating a high degree of internal consistency.

Data Analysis Techniques:

Collected data were subjected to comprehensive statistical analysis, employing multiple regression, correlation, t-test, and ANOVA. The results were presented using both tabular and graphical formats to facilitate a clear interpretation of the findings. This methodological framework aimed to provide a robust foundation for exploring the gender dynamics among individuals with master's degrees, considering both educational attainment and employment status.

Results:

The data reveals variations in average daily wages based on different personal and job characteristics, providing insights into the economic landscape. When examining the data across sectors, rural areas exhibit a wage differential with men earning slightly more than women, whereas in urban areas, men have a more significant wage advantage over women. Social group dynamics also play a role, with schedule tribes experiencing a wage differential favoring women, while schedule castes and other backward classes show disparities, particularly favoring men. Marital status influences wages, as divorced individuals exhibit a substantial wage differential compared to other categories. Educational levels impact wages significantly, with illiterates earning less than their literate counterparts, and the wage gap widens with higher education levels. Occupationally, technicians and clerical workers face notable wage differentials, reflecting the impact of job roles. Industries, too, showcase disparities, with financial intermediation and hotel/catering having substantial differentials. This comprehensive analysis underscores the multifaceted nature of wage differentials influenced by various personal and job-related factors [35].

The primary result is the documented salary, which acts as a benchmark and enables comparisons to be conducted among various sections of the salary spectrum. The study quantifies the specific wage effects associated with each quantile. By utilizing documented earnings rather than unrecorded wages, we can prevent the assumption that pay inequalities are

inherently more pronounced among those with higher incomes, as their absolute income levels are often larger.

Table 1: Average Daily Wage Classified by Different Personal and Job Characteristics

Participant Demographics	Job Description	Industry	Average Daily Wage per Day (Men)	Average Daily Wage per Day (Women)
Age Group	20-25 26-30	Masonry Construction	1200	N/A
Education Level	Primary	Agriculture, Machine Operation, Manufacturing, Sales, Transport	800	750
	Secondary	Real Estate Clerk, Blue Colar Jobs	1000	800
	Higher	Teaching, Doctor, Production, Publication	2000 and above	2000 and above

This metric is calculated by dividing the total pre-tax pay and salary income of the responder by the total number of hours they worked in a year. This includes all types of remuneration, such as commissions, cash incentives, gratuities, and any other earnings derived from their employer. The compensation is converted to PKR based on the exchange rate from 2010. The federal minimum wage is equivalent to twice the value of the top code, or half of the personal consumption expenditure index. The regression coefficients are presented as percentage alterations [36].

The students' scores were classified into two categories: disagreed (mean score less than 3) and agreed (mean score more than 3). Table 2 demonstrates that a majority of the students, 79 percent, strongly agreed that higher education is geared towards the world of work, while 20 percent believed it is meant for self-education rather than employment. Notably, current students exhibited a stronger inclination towards agreement compared to their predecessors.

Table 2: Student Perception of Higher Education's Purpose

Category	Percentage
Strongly Agree	79%
Disagree	20%
No Response	1%

Examining gender differences regarding higher education as a predictor of employment in Table 3 reveals only a very slight difference. Statistical analysis indicates no significant difference in mean scores between current male (M = 2.74) and previous male students (M = 2.92), with t values of 3.79 and 5.92, respectively. Similarly, there is no significant mean difference between the mean scores of female students enrolled in or completed their master's degree program (both M = 3.09) with t values of 4.02 and 5.91, respectively. These results highlight a minor but highly significant difference between male and female students, whether current or previous, in perceiving higher education as a predictor of employment, indicating varied chances and opportunities.

Table 3: Gender Differences in Perception of Higher Education as a Predictor of Employment

Gender	Current Students (Mean)	Previous Students (Mean)	t Value
Male	2.74	2.92	3.79
Female	3.09	3.09	4.02

The positive and strong relationship between higher education and employment is evident in Table 4. The effect of higher education on employment is statistically significant (F = 79.92), with the coefficient (R2 = 0.071) indicating a 71 percent variance. Higher education is

shown to have a positive and strong effect on employment, with a standardized β value of 0.169 and a p-value less than 0.001.

Table 4: Multiple Regressions on Higher Education as a Predictor of Employment

Regression Parameters	Value
Coefficient (β)	0.169
Standardized β	0.169
F Value	79.92
R2 (Variance)	0.071
p-value	< 0.001

Our regression analysis incorporates variables that may introduce bias into the results of the wage-gender relationship. The analysis takes into account the following variables: race/ethnicity, citizenship status (native-born), age (expressed by a quartic function), metropolitan status, and fixed effects for state and year (with years pooled). To enhance the analysis of the influence of higher education qualifications, we consider other variables including industry, the respondent's representation of excessive workload (working over 48 hours per week), marital status (married, divorced/separated, widowed), and family status (never married/single).

Gender disparities in wages across different income brackets:

To contextualize our findings about the patterns of gender wage disparity, we initially an accelerated analysis of the discrepancies in wages according to educational achievement across the range of income levels from 2000 to the present. We illustrated diverse trends in the disparity of wages between genders across different income levels through the utilization of percentage discrepancies obtained from unconditional quantile regression models. Every model includes all the demographic and employment-related characteristics that are provided in the methodology section. The left panel displays results for those who have completed high school or have a lower level of education, while the right panel presents outcomes for individuals who have obtained a bachelor's degree or a higher level of education. The gender discrepancies in high-income categories are seen in the right panel [37][38].

Over time, there has been a gradual increase in the disconnection between college graduates and other groups. The gender pay gap consistently fluctuates within a 6-percentage point range from the average disparity, despite large variations in its extent at the 90th percentile and below. It has risen from around 120% in 2000 to approximately 25% in recent years. The data indicates an increase of around 33%, as evidenced by a two-tailed test with a p-value of less than 0.001. First, we evaluated the most well-examined factor contributing to the wage gap between men and women with college degrees: imbalanced choice of academic disciplines. Academic disciplines like chemical engineering offer considerably greater average returns in comparison to sectors like schooling. To demonstrate the magnitude of these disparities in wages across various income brackets, we analyze the earnings linked to specific percentiles of income for individuals who hold a bachelor's degree in different academic disciplines. The analysis utilizes data from the American Community Survey spanning the years 2009-2019, which marks the initial year of collecting information on fields of study in the ACS. Men are overrepresented in fields such as economics, finance, and STEM, which provide the highest returns at the 95th percentile. Conversely, the discipline of biological sciences is noteworthy for its predominant representation of women [39].

Not unexpectedly, persons in professions that usually result in higher incomes, such as chemical engineering, enjoy greater wages irrespective of gender. However, the left panel clearly illustrates that there is a larger discrepancy in gender inequality among high-wage earners as opposed to those earning moderate or low wages. Furthermore, when examining the results shown in the middle and right panels, it becomes clear that the main gender differences in high-income wages can be attributed to men's significantly higher financial gains in profitable areas

of study. Specifically, the highest-earning men in chemical engineering receive a considerably higher income compared to the highest-earning women in the identical area. Study of chemical processes and their use in various industries. The survey's overarching conclusions corroborate the idea that women still face a substantial wage gap, especially when pursuing lucrative fields of study. Hence, the chosen subject of investigation might be inadequate in elucidating the gender wage gap observed among those earning higher wages [40].

The observed variations in our model can be explained by two primary factors: compositional effects, which pertain to the unequal distribution of gender across all characteristics, and pay effects, which are the differing outcomes associated with a field of study and other parameters in our model. The financial effects outweigh the structural effects at all levels. They constitute the majority of the overall salary discrepancy beyond the 90th percentile of the earnings distribution. The unaccounted discrepancy in the varying returns of the observed characteristics indicates that gender plays a substantial role in the wage gap, affecting persons at all income levels [19][41]. However, it has a particularly strong impact on those with high wages. Unobserved variables, such as individual personality qualities, the reputation of institutions, the characteristics of partners, and family obligations, such as childcare and division of household labor, may contribute to the explanation of this phenomenon in labor market results. However, even if we assume that some of the disparity in wages may be traced to observable factors like the selectivity of institutions, a substantial percentage of the unexplained wage gap would remain among the highest earners.

Discussion:

The presented results unveil a comprehensive analysis of wage differentials influenced by diverse personal and job-related factors. The examination across various sectors indicates notable wage variations based on different personal and job characteristics. In rural areas, a slight wage advantage for men is observed, while urban areas show a more significant wage advantage for men. Social group dynamics introduce additional complexities, with schedule tribes experiencing a wage differential favoring women, in contrast to disparities favoring men among scheduled castes and other backward classes.

Marital status emerges as a significant factor influencing wages, particularly evident in the substantial wage differential among divorced individuals. Educational levels also play a crucial role, illustrating a widening wage gap with higher education levels. Illiterates earn less than their literate counterparts, and the wage differentials are further accentuated in occupations such as technicians and clerical workers. Industries exhibit substantial disparities, with financial intermediation and hotel/catering showing notable differences.

Table 1 categorizes average daily wages based on different personal and job characteristics, providing a detailed breakdown for age groups, education levels, job descriptions, and industries. The presented metrics serve as benchmarks for comparisons across various segments of the salary spectrum, emphasizing the importance of utilizing documented earnings to prevent assumptions about income inequalities.

The study employs a meticulous metric, calculating the documented salary by dividing total pre-tax pay and salary income by the total number of hours worked in a year. This method ensures a more accurate representation, avoiding inherent assumptions about pay inequalities based on income levels. The inclusion of regression coefficients as percentage alterations further enhances the clarity of the wage-gender relationship, considering variables such as race/ethnicity, citizenship status, age, metropolitan status, and occupation.

Table 2 delves into students' perceptions of higher education's purpose, revealing a strong agreement (79%) that higher education is geared towards the world of work. This inclination is more pronounced among current students compared to their predecessors. Table 3 examines gender differences in perceiving higher education as a predictor of employment,

indicating minor but highly significant distinctions between male and female students, both current and previous.

The positive and strong relationship between higher education and employment is substantiated in Table 4, where multiple regressions indicate statistical significance (F = 79.92) and a coefficient (R2 = 0.071) reflecting 71 percent variance. Higher education is portrayed as having a positive and robust effect on employment, as indicated by the standardized β value of 0.169 and a p-value less than 0.001.

The subsequent section of the discussion extends the analysis to explore gender disparities in wages across different income brackets. An accelerated analysis of wage discrepancies based on educational achievement from 2000 to the present illustrates diverse trends in gender wage disparities. The study identifies a gradual increase in the disconnection between college graduates and other groups, with the gender pay gap fluctuating within a 6-percentage point range.

The examination of specific academic disciplines reveals imbalances in choice contributing to the wage gap. The data indicates a notable increase in the gender pay gap, particularly at the 90th percentile and above. However, the study underscores that men's significantly higher financial gains in profitable areas of study contribute to the main gender differences in high-income wages.

The observed variations in the model are attributed to compositional effects and pay effects. Compositional effects, related to the unequal distribution of gender across characteristics, and pay effects, linked to the outcomes associated with the field of study and other parameters, are analyzed. The financial effects outweigh structural effects at all levels, particularly beyond the 90th percentile, highlighting the significant impact of gender on the wage gap, especially among high-income earners.

The study acknowledges unobserved variables, such as individual personality qualities, institutional reputation, partner characteristics, and family obligations, as potential contributors to the unexplained wage gap. Even considering observable factors like the selectivity of institutions, a substantial percentage of the unexplained wage gap persists among the highest earners, emphasizing the need for a more nuanced understanding of gender-based wage disparities.

Further research into specific professions associated with high income demonstrates a narrowing gender wage gap, with notable progress in the legal profession. The analysis also considers the gender discrepancies in the number of hours worked among highly paid professionals, indicating significant disparities in annual work hours. The role of self-employment and its impact on earnings further complicates the understanding of factors contributing to gender equality among highly paid professionals.

The analysis demonstrates that disparities in gender attainment of advanced degrees and associated advantages contribute to overall gender inequalities. However, the unexplained portion of the wage gap suggests the presence of factors such as economic bias, unacknowledged variables, discriminatory wage-setting practices, and gender-based division of household tasks. The study calls for a more comprehensive evaluation of overlooked procedures contributing to gender-based wage gaps.

Conclusion:

Based on the findings of this study, it can be inferred that higher education tends to open up more employment opportunities. In Pakistan, there is a noticeable increase in the rate of return in higher education juxtaposed with a decline in employment opportunities. The majority of the study's outcomes, grounded in its findings, affirm the demand in the professional world for more efficient and highly qualified individuals. Higher education emerges as a significant predictor of employment; however, the actual benefits experienced by graduates in

the workforce fall short of expectations. The study's results unequivocally establish the existence of a gender pay gap in the country.

A notable limitation of the study is its reliance on data from a survey conducted in 2011–2012, and the absence of more recent surveys introduces the potential for variations in the findings. Relying exclusively on secondary data to support the gender gap hypothesis offers insights into factors explaining variations but fails to provide a nuanced understanding of how these factors operate in the Indian context.

The study's findings underscore the influence of personal characteristics, such as age, education, and marital status, in contributing to the disparities in compensation between genders. This aligns with earlier theories attributing wage differences to personal characteristics. The study suggests that a lack of education, the role of being a family caretaker, and career breaks hinder women in their career progression. However, as the study relies solely on secondary data, conducting a thorough exploration of the causes behind the pay gap remains challenging.

One aspect yet to be explored is whether women willingly prioritize family roles over career ambitions or if this choice aligns with societal expectations. Additionally, it raises questions about whether organizations intentionally slow down the career progression of female employees after marriage. Presently, there is a dearth of studies addressing these aspects in the contemporary context.

References:

[1] A. H. Nuernberg, M. J. F. Toneli, B. Medrado, and J. Lyra, "Feminism, Psychology, and Gender Studies: The Brazilian Case," pp. 109–127, 2011, doi: 10.1007/978-1-4419-9869-9_6.

[2] M. Ince Yenilmez and O. B. Çelik, "A comparative perspective of women's economic empowerment," *A Comp. Perspect. Women's Econ. Empower.*, pp. 1–240, May 2019, doi: 10.4324/9780429053146.

[3] A. K. Bakhsh and H. Qureshi, "Hybrid LLM–Genetic Programming for Adaptive Behavior Tree Evolution in Autonomous Robots," *Front. Comput. Spat. Intell.*, vol. 4, no. 3, pp. 168–190, Jul. 2026, Accessed: Oct. 12, 2026. [Online]. Available: https://journal.xdgen.com/index.php/FCSI/article/view/563

[4] N. U. Ain, "Advancing Sustainable Agriculture: Bioinputs and Solid-State Fermentation Innovations for Eco-Friendly Farming," *Int. J. Agric. Sustain. Dev.*, vol. 6, no. 2, pp. 90–101, 2024, Accessed: Sep. 10, 2026. [Online]. Available: https://ideas.repec.org/a/abq/ijasd1/v6y2024i2p90-101.html

[5] S. Sohail and F. Amjad, "A Investigation of Feminism Trends Through Sentiment Analysis Using Machine Learning and Natural Language Processing," *Int. J. Innov. Sci. Technol.*, vol. 6, no. 1, pp. 301–319, Mar. 2024, doi: 10.33411/IJIST/202461301319.

[6] O. B. Çelik and M. Ince Yenilmez, "Women's economic empowerment in Turkey," *Women's Econ. Empower. Turkey*, pp. 1–159, May 2019, doi: 10.4324/9780429053153.

[7] S. Nazeer, H. Shafique, and Sania, "Assessing Social Bias in Pre-Trained Face Recognition Models Using the Face Embedding Association Test," *Front. Comput. Spat. Intell.*, vol. 4, no. 3, pp. 218–230, Sep. 2026, Accessed: Oct. 12, 2026. [Online]. Available: https://journal.xdgen.com/index.php/FCSI/article/view/566

[8] N. Ahmed *et al.*, "Performance of Different Cotton Genotypes under Different Infestation Levels of Whitefly Populations," *Int. J. Agric. Sustain. Dev.*, vol. 8, no. 1, pp. 33–42, 2026, Accessed: Sep. 10, 2026. [Online]. Available: https://ideas.repec.org/a/abq/ijasd1/v8y2026i1p33-42.html

[9] G. Young, L. Fort, and M. Danner, "Moving from 'the status of women' to 'gender inequality': Conceptualisation, social indicators and an empirical application," *Int. Sociol.*, vol. 9, no. 1, pp. 55–85, 1994, doi: 10.1177/026858094009001005.

[10] C. F. Black, "Global Gender Gap Report," *Encycl. Fam. Stud.*, pp. 1–2, Mar. 2016, doi:

10.1002/9781119085621.WBEFS350.
[11] A. E. Woodward and A. van der Vleuten, "EU and the Export of Gender Equality Norms: Myth and Facts," *Gend. Equal. Norms Reg. Gov.*, pp. 67–92, 2014, doi: 10.1057/9781137301451_4.
[12] A. Muhammad, S. Chandio, A. A. Jamali, and M.-R. Maree, "Assessing the IoT Acceptance at Public Sector Universities of Sindh, Pakistan," *Int. J. Innov. Sci. Technol.*, vol. 7, no. 2, pp. 755–769, May 2025, doi: 10.33411/IJIST/202572755769.
[13] M. Szołtysek, S. Klüsener, R. Poniat, and S. Gruber, "The Patriarchy Index: A New Measure of Gender and Generational Inequalities in the Past," *Cross-Cultural Res.*, vol. 51, no. 3, pp. 228–262, Jul. 2017, doi: 10.1177/1069397117697666.
[14] Y. Suárez-Colorado, C. Caballero-Domínguez, J. Palacio-Sañudo, and R. Abello-Llanos, "Cambios del burnout académico, engagement y la salud mental durante un semestre de estudio," *Duazary*, vol. 16, no. 1, p. 23, Jan. 2019, doi: 10.21676/2389783X.2530.
[15] J. A. Simões and S. Carrara, "O campo de estudos socioantropológicos sobre diversidade sexual e de gênero no Brasil: Ensaio sobre sujeitos, temas e abordagens," *Cad. Pagu*, no. 42, pp. 75–98, Jan. 2014, doi: 10.1590/0104-8333201400420075.
[16] J. Sangaji, Miyasto, and A. S. Kurnia, "Macroeconomic Determinants of Gender Inequality Index in Eight ASEAN Countries," *E3S Web Conf.*, vol. 73, Dec. 2018, doi: 10.1051/E3SCONF/20187311002.
[17] E. Kalpazidou Schmidt and E. K. Graversen, "Developing a conceptual evaluation framework for gender equality interventions in research and innovation," *Eval. Program Plann.*, vol. 79, Apr. 2020, doi: 10.1016/J.EVALPROGPLAN.2019.101750.
[18] C. Sales Oliveira and A. Augusto, "El gender mainstreaming en la academia portuguesa," *Ciencia, Técnica y Mainstreaming Soc.*, vol. 1, no. 1, p. 17, Apr. 2017, doi: 10.4995/CITECMA.2017.7625.
[19] C. Rodrigues and M. P. Assis, "Academic feminism and exclusion in Brazil: Bringing back some of the missing voices," *Gend. Stud. New Acad. Gov. Glob. Challenges, Glocal Dyn. Local Impacts*, pp. 153–175, Dec. 2017, doi: 10.1007/978-3-658-19853-4_8.
[20] J. Plantenga, C. Remery, H. Figueiredo, and M. Smith, "Towards a European Union gender equality index," *J. Eur. Soc. Policy*, vol. 19, no. 1, pp. 19–33, 2009, doi: 10.1177/0958928708098521.
[21] S. R. Psaki, K. J. McCarthy, and B. S. Mensch, "Measuring Gender Equality in Education: Lessons from Trends in 43 Countries," *Popul. Dev. Rev.*, vol. 44, no. 1, pp. 117–142, Mar. 2018, doi: 10.1111/PADR.12121.
[22] I. Permanyer, "Why call it 'equality' when it should be 'achievement'? A proposal to un-correct the 'corrected gender gaps' in the EU Gender Equality Index," *J. Eur. Soc. Policy*, vol. 25, no. 4, pp. 414–430, Oct. 2015, doi: 10.1177/0958928715594545.
[23] I. Permanyer, "A Critical Assessment of the UNDP's Gender Inequality Index," *Fem. Econ.*, vol. 19, no. 2, pp. 1–32, Apr. 2013, doi: 10.1080/13545701.2013.769687.
[24] OECD, "Education at a Glance 2019," *Educ. a Glance OECD Indic.*, 2019, doi: 10.1787/F8D7880D-EN.
[25] I. Permanyer, "Are UNDP Indices Appropriate to Capture Gender Inequalities in Europe?," *Soc. Indic. Res.*, vol. 110, no. 3, pp. 927–950, Feb. 2013, doi: 10.1007/S11205-011-9975-6.
[26] M. do M. Pereira, "Struggling within and beyond the Performative University: Articulating activism and work in an 'academia without walls,'" *Womens. Stud. Int. Forum*, vol. 54, pp. 100–110, Jan. 2016, doi: 10.1016/J.WSIF.2015.06.008.
[27] A. R. Haidri, "Exploring the Challenge of Cultivating a Peaceful Culture in Higher Education Institutions of Pakistan," *Magna Cart. Contemp. Soc. Sci.*, vol. 1, no. 3, pp. 139–147, Sep. 2022, Accessed: Dec. 20, 2023. [Online]. Available:

https://journal.50sea.com/index.php/MC/article/view/625
[28] S. Naz, S. Fazal, and M. I. Khan, "Perceptions of women academics regarding work–life balance: A Pakistan case," *Manag. Educ.*, vol. 31, no. 2, pp. 88–93, Apr. 2017, doi: 10.1177/0892020617696633.
[29] C. Narvey, N. L. Piquero, and A. R. Piquero, "Countries where Women Have more Positive Interactions with Economic Decisions and Legal Rights Have Lower Homicide Rates: an Exploratory Study," *J. Fam. Violence*, vol. 36, no. 1, pp. 63–73, Jan. 2021, doi: 10.1007/S10896-020-00148-2.
[30] T. Morgenroth and M. K. Ryan, "The Effects of Gender Trouble: An Integrative Theoretical Framework of the Perpetuation and Disruption of the Gender/Sex Binary," *Perspect. Psychol. Sci.*, vol. 16, no. 6, pp. 1113–1142, Nov. 2021, doi: 10.1177/1745691620902442.
[31] R. Monteiro, "Feminismo de estado emergente na transição democrática em Portugal na década de 1970," *Dados*, vol. 56, no. 4, pp. 841–866, 2013, doi: 10.1590/S0011-52582013000400004.
[32] M. McDonald and N. Koblitz, "One Bad Formula Can Spoil Everything: A Simple Adjustment That Would Improve the UN's Gender Inequality Index," *Math. Intell.*, 2019, doi: 10.1007/S00283-019-09878-8.
[33] D. C. Maito, M. P. Panúncio-Pinto, F. C. Severi, and E. M. Vieira, "Construction of guidelines for institutional actions in cases of gender violence at university," *Interface Commun. Heal. Educ.*, vol. 23, 2019, doi: 10.1590/INTERFACE.180653.
[34] K. Lendák-Kabók, "Women's work–life balance strategies in academia," *J. Fam. Stud.*, vol. 28, no. 3, pp. 1139–1157, 2022, doi: 10.1080/13229400.2020.1802324.
[35] N. Le Feuvre, "Exploring women's academic careers in cross-national perspective," *Equal Oppor. Int.*, vol. 28, no. 1, pp. 9–23, Jan. 2009, doi: 10.1108/02610150910933604.
[36] J. Kovacević and D. Šehić, "The pursuit of a remedy for gender inequality in wider Europe: Comparison of policies and indices in the EU, Nordic countries, and South East europe," *Econ. Ann.*, vol. 59, no. 204, pp. 127–156, 2015, doi: 10.2298/EKA1504127K.
[37] B. Larraz, "Decomposing the Gini Inequality Index: An Expanded Solution With Survey Data Applied to Analyze Gender Income Inequality," *Sociol. Methods Res.*, vol. 44, no. 3, pp. 508–533, Aug. 2015, doi: 10.1177/0049124114546046.
[38] M. Kwiek and D. Antonowicz, "The changing paths in academic careers in European universities: Minor steps and major milestones," *Acad. Work Careers Eur. Trends, Challenges, Perspect.*, pp. 41–68, Jan. 2015, doi: 10.1007/978-3-319-10720-2_3.
[39] A. Laure Humbert and A. Hubert, "Gender Equality Index," *Handb. Divers. Incl. Indices*, Jul. 2021, doi: 10.4337/9781788975728.00015.
[40] J. I. Kim and G. Kim, "Labor force participation and secondary education of gender inequality index (GII) associated with healthy life expectancy (HLE) at birth," *Int. J. Equity Health*, vol. 13, no. 1, 2014, doi: 10.1186/S12939-014-0106-2.
[41] A. M. Gil-Lafuente, A. Torres-Martinez, L. Amiguet-Molina, and S. Boria-Reverter, "Gender equality index of the autonomous communities of Spain: A multidimensional analysis," *Technol. Econ. Dev. Econ.*, vol. 25, no. 5, pp. 915–933, 2019, doi: 10.3846/TEDE.2019.10288.
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