Gender, Ethnicity, and Education–Job Mismatch in Afghanistan: Evidence from Kabul University Graduates

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ABSTRACT

The objective of this paper is to examine the impact of gender and ethnicity on the incidence of education job-mismatch among graduates of Kabul University. Using data collected from 272 graduates of Kabul University's 2015 cohort and employing a logistic regression model, this study investigates whether the Afghan labor market provides equal opportunities for these graduates to obtain jobs related to their fields of study, regardless of their gender and ethnic background. More than half of the graduates (55.5%) are employed in jobs that do not match their academic disciplines. However, gender and ethnicity do not play a statistically significant role in this mismatch. This investigation was limited to a specific population, namely, graduates of Kabul University in 2015. Despite broader gender and ethnic inequalities in Afghan society, this study suggests that the country's labor market offers relatively equal opportunities for graduates to find appropriate employment. - This pattern of equality in Afghanistan's labor market should be strengthened and sustained through regular, broader assessments and the implementation of practical steps.

1. Introduction

Education-job mismatch, a prevalent issue in today's workforce, can take different forms. A horizontal mismatch occurs when a worker receives training in a specific field but works in a different one. For example, a person with expertise in electrical engineering may be employed as a sales manager in a corporation. In contrast, a vertical mismatch occurs when an individual's level of education or skills does not align with the level required for their job (Robst, 2007a).

Such education-job mismatch can have significant consequences, not only for individuals but also for companies. As robust evidence suggests, education-job mismatch is associated with lower income, reduced job satisfaction, decreased productivity, and increased employee turnover (Meliciani and Radicchia, 2016). Individuals experiencing a mismatch earn less than those in well-matched jobs, according to various researchers (e.g., Badillo-Amador & Vila, 2013; Chevalier, 2003; Groot & Maassen van den Brink, 2000; Nordin *et al.*, 2010). There is a positive correlation between mismatch and job turnover, as well as unemployment, as highlighted by other studies (e.g., Allen & van der Velden, 2001; Béduwé & Giret, 2011; García-Aracil & Van Der Velden, 2008; Jovanovic, 1984; Sloane *et al.*, 1999; Wolbers, 2003). Furthermore, education-job mismatch is identified as one of the causes of job dissatisfaction (Béduwé and Giret, 2011; Bender and Roche, 2013; Shevchuk, Strebkov, and Davis, 2015; Sam, 2020). These consequences can be particularly severe in developing countries with fragile labor markets, such as Afghanistan.

In Afghanistan, the labor market is grappling with substantial structural challenges. Afghanistan's national unemployment rate stands at 24%, indicating that approximately 2.0 million

people are unable to find employment. This high unemployment rate suggests that the Afghan economy is unable to utilize the country's existing labor force effectively. However, the most alarming aspect is the impact on the youth, with unemployment rates reaching as high as 31%. This high youth unemployment rate is not only hampering their personal growth but also poses a significant threat to the country's future. Moreover, 20% of the employed population, equivalent to 1.3 million individuals, are considered underemployed, a situation that significantly impacts their lives, as their occupations do not effectively provide them with enough income or a decent standard of living. Moreover, the employment landscape in Afghanistan has a profound impact on the majority of the population. An estimated 80% of all occupations fall under the category of vulnerable employment, characterized by both a lack of job security and inadequate working conditions. This means that only about 13% of Afghanistan's working population can be classified as having satisfactory employment. The situation is also dire for university graduates, with the survey revealing that only 49% of male graduates are able to find a job after completing their studies (CSO, 2018). Structural market inefficiencies are compounded by pervasive social inequalities, particularly in terms of gender and ethnicity

Afghanistan is a country with a pressing need to address a wide range of social inequalities. Gender and ethnic disparities, among the most significant, demand serious attention. The severity of these disparities is evident in the Central Statistics Organization (CSO) report (2018), which states that the unemployment rate for women is 41%, more than double that of men (18.3%). One of the key indicators of gender equality in the Sustainable Development Goals (SDGs) is the proportion of women in managerial positions. In this report, this proportion is estimated at 4%, underscoring the low representation of women in economic decision-making. Gender inequality is also evident in education and political representation. Girls continue to have lower enrollment rates in educational institutions compared to boys, and Afghan women remain the most deprived group in terms of politics. Akseer *et al*. (2019) report that most men (62%) want a man to represent them in parliament, while only 4.2% of men want to be represented by a woman. The issue of ethnic inequality is deeply entrenched in Afghanistan. A study conducted by Besharat (2018) found that a significant 31.2% of all respondents reported experiencing discrimination based on their ethnicity. This study sheds light on the severity of the problem. Of particular concern is the situation of the Jogis ethnic group, who, despite residing in Afghanistan for many years, are still denied citizenship.

These existing gender and ethnic disparities may hinder female graduates and those from ethnic minority backgrounds from exercising their right to secure jobs in their fields, and are likely to compel them to accept unrelated and mismatched jobs. Thus, Afghanistan provides a natural laboratory to examine the dual concerns of education-job mismatch and socio-economic inequities experienced by university graduates in the country. The potential impact of this study's findings is significant, offering valuable insights for policymakers and educational institutions in devising methods to enhance job placement and support for minority groups, thereby fostering a fairer and more effective labor market.

Previous research mainly investigated the impact of demographic characteristics, educational background, work experience, and job characteristics on education-job mismatch. These studies, however, provide mixed results.

Studies report different results regarding demographic variables. Gender effects, for instance, some findings show that being a woman is associated with a higher likelihood of job mismatch (Hensen, De Vries and Cörvers, 2009; Farooq, 2011; Nieto, Matano and Ramos, 2021), while others argue that women have a higher degree of job match than men (Bender and Roche, 2013; Robert, 2014). Still, some studies did not find significant gender differences in education-job mismatch (e.g. García-Espejo and Ibáñez, 2006). Ethnic and racial inequalities have also been widely discussed in prior studies. Among racial and ethnic backgrounds, groups that face discrimination are less likely to find jobs related to their field. For example, Robst (2007b) found that black individuals experience a higher level of job mismatch due to a lack of job opportunities. Notably, another study by the same author, Robst (2007a) found that education-job matching is better for Black, Native

American, and Hispanic individuals than for White and Asian individuals. Another study (Bender and Roche, 2013) reports that Asian workers are more susceptible to mismatch than white workers, while Hispanic workers are less likely to experience a mismatch. Similarly, research in some countries has confirmed that migrant workers are more likely to be vulnerable to an education-

job mismatch than native workers (e.g.,Fernández-Macías *et al.*, 2012; Hensen *et al.*, 2009; Nieto *et al.*, 2021; Sanromá *et al.*, 2008; Sarkar, 2017).

Researchers have also examined the effects of some educational characteristics on the education-job mismatch. Regarding fields of study, many researchers have shown that graduates from disciplines such as the arts, social sciences, and education, which have more general curricula, are more likely to face higher levels of education-job mismatch. In contrast, those with degrees from disciplines like engineering, manufacturing, construction, and health-related disciplines, which provide specific occupational skills for the labor market, are less likely to experience education-job mismatch (e.g., Boudarbat and Chernoff, 2012; García-Espejo and Ibáñez, 2006; Robert, 2014; Robst, 2007a; Wolbers, 2003). Furthermore, findings indicate that higher levels of education are negatively associated with the likelihood of education-job mismatch (e.g., Bender & Roche, 2013a; Boudarbat & Chernoff, 2012; Hensen et al., 2009; Robst, 2007a; Wolbers, 2003). Some studies also provide evidence of a negative correlation between good grades during studies and education-job mismatch (e.g., Boudarbat & Chernoff, 2012; García-Espejo & Ibáñez, 2006; Grayson*, 2004). Only a few studies have focused on the role of work experience or activities undertaken before or during the academic program. Boudarbat and Chernoff, (2012) found that graduates who had work experience before entering their program had a better match than those who merely studied before entering the program. Robert (2014) notes that although study-related work during education helps prevent horizontal mismatch, it does not influence vertical mismatch. However, vertical and horizontal mismatches with unrelated work activities are more likely to occur.

Job characteristics are not just factors, but they significantly influence the education-job mismatch. The research findings indicate that self-employed workers are more likely to experience a high degree of job mismatch compared to wage or salary workers (Bender and Roche, 2013; Ghosh and Grassi, 2020). In terms of employment sectors, public sector employees are more likely to be job-mismatched than those in the private sector (Wolbers, 2003; García-Espejo and Ibáñez, 2006). Meliciani & Radicchia (2016) report that employees in the business, industry, and agriculture sectors have higher mismatch rates, while those in construction have lower mismatch rates. Previous literature has likewise focused on how job search methods influence the education-job mismatch. Workers who enter the labor market through informal channels such as social networks (friends, family, relatives, etc.) are more likely to be prone to a higher degree of mismatch, as highlighted by several studies (e.g., Bentolila *et al*., 2010; Boudarbat & Chernoff, 2012; Ghosh & Grassi, 2020; Matsuda & Nomura, 2025; Meliciani & Radicchia, 2016). Additionally, prior research on education-job mismatch presents mixed evidence regarding the effects of job position. Additionally, prior research presents mixed results regarding the effects of job position. Studies (Witte and Kalleberg, 1995; Farooq, 2011) show that individuals in specialist, managerial, professional, and associate professional roles had a lower likelihood of job mismatches than individuals in elementary occupations. Sarkar's (2017) work highlights the growing prevalence of educational mismatch in low-skilled jobs in Spain and the UK, such as personal and protective service employment, sales, and elementary service roles. Her findings also point to a higher prevalence of over-education in middle-skill (office clerical) and high-skill (professional and managerial) occupations in Germany and Sweden.

Despite extensive research, a notable gap remains in the literature regarding the analysis of these factors on the education-job mismatch. First, research on job mismatch presents an interesting lack of consensus on the impact of gender and ethnicity differences. On the other hand, to the best of our knowledge, no studies have been conducted on the education-job mismatch, particularly in understanding how gender and ethnic differences influence the incidence of this mismatch in fragile and understudied contexts, such as Afghanistan. With its unique socio-economic, cultural, and ethnic context, Afghanistan presents a distinct case for such a study. Investigating the impact of gender and ethnic inequalities on the incidence of mismatch among recent graduates in this context addresses these significant gaps in the existing literature and contributes to a deeper understanding of the role of structural inequalities in the labor market outcomes of graduates in developing and post-conflict countries. This study makes a distinct theoretical contribution by challenging the implicit assumption prevalent in much of the existing mismatch literature that socially embedded inequalities, such as gender and ethnicity, necessarily translate into differential labor market outcomes for graduates. By demonstrating that gender and ethnic background do not significantly predict education–job

mismatch in the Afghan context, even when structural inequalities are severe and well-documented, this study advances theoretical debate by showing that the relationship between social inequality and mismatch is not universal. It highlights that macro-level inequalities and micro-level labor market matching processes can operate independently, a finding that has implications for theories of labor market stratification in post-conflict and developing country settings.

In light of these research gaps, this study aims to contribute to the existing literature by focusing on an understudied context. This study focuses on specific graduate groups who completed their studies at Kabul University in 2015. It investigates whether these individuals were able to overcome gender and ethnic disparities in the labor market. Specifically, it examines whether female graduates and those from ethnic minority backgrounds who earned their degrees from Kabul University in 2015 experience a higher degree of education-job mismatch compared to their counterparts. By addressing these questions, this study aims to highlight the underlying and less visible aspects of the dynamics of gender and ethnic inequality in post-graduation employment outcomes.

2. Method

2.1 Data

The current study aims to answer the main question: "Do gender and ethnic inequalities prevent Kabul University graduates from finding jobs that match their education?" The population of this study is all individuals who graduated from Kabul University in 2015. Kabul University, one of the oldest and most prominent public universities in Afghanistan, was established during the reign of Mohammad Nadir Shah in 1931. Currently, it has 18 faculties and 68 departments. This university has the highest number of graduates yearly compared to other universities in Afghanistan. In 2015, 3,950 individuals, including 2,831 males and 1,119 females from a wide range of diverse ethnic backgrounds, completed bachelor's and master's degree programs at this university.

The research employs the "stratified random sampling" technique for data collection. Graduates are stratified based on gender. Then, corresponding to the number of graduates in each stratum, we randomly selected the required number of samples. To determine the required sample size of each stratum, we first calculated the overall sample size using Cochran's formula. Since the target population consists of 3,950 graduates, the total sample size was estimated to be 351. To calculate the sample size of each stratum, the total sample size of the population (351) was divided by the population size (3,950). Then, this value was multiplied by the population size of each stratum. Then, this value was multiplied by the population size of each stratum. In this manner, the required sample sizes were determined to be 251 for male graduates and 100 for female graduates. The final sample size for this study was reduced to 272 graduates, as 46 male and 33 female graduates in the sample were unemployed at the time of the study.

Given that the target population was dispersed and extensive, and information about their job status and residence was unavailable, face-to-face interviews were not feasible. In this sense, information and data were collected through telephone interviews. The contact information of all graduates was obtained from Kabul University. The interview was conducted with them in 2019, four years after graduation.

2.2 Model Specification

To determine and predict factors affecting the incidence of education-job mismatch among workers who graduated from Kabul University in 2015, we applied the following multiple binary logistic regression:

〖HM〗_i^*=α_i+β_1 〖Female〗_i+β_2 〖Pashtun〗_i+β_3 〖Tajik〗_i+β_4 〖Hazara〗_i+β_4 〖Uzbek〗_i+X_i^Control γ+ε_i ……..…(1)

Where HM_i^* stands for horizontal mismatch, the dependent variable, and indicates the ratio of the likelihood of field job mismatch to the likelihood of field job match. $Female_i$, $Pashtun_i$, $Tajik_i$, $Hazara_i$, and $Uzbek_i$ refer to being female, belonging to Pashtun, Tajik, Hazara, and Uzbek ethnicity groups. Respondents who did not belong to these four major groups were combined into an

"Others" category, which includes individuals from the Turkmen, Nuristani, Baloch, Jogi, and other smaller ethnic communities represented in the 2015 Kabul University cohort. These groups were aggregated due to their small individual frequencies, which would have rendered separate regression estimates unreliable. It is acknowledged that this aggregation may mask heterogeneity within the "Others" category; ethnic groups with distinct socio-economic profiles may have different mismatch experiences, and merging them could attenuate or obscure group-specific effects. This is recognized as a limitation of the current analysis, and future studies with larger samples are encouraged to disaggregate these groups. In this way, $X_i^{Control}$ stands for the vector of control variables.

2.2 Variables description

Dependent Variable: The dependent variable of this study is the horizontal mismatch. As in some prior studies (e.g. Badillo-Amador & Vila, 2013; Bender & Roche, 2013; Boudarbat & Chernoff, 2012; Shevchuk *et al.*, 2015), we also used the Worker Self-Assessment (WA) method to measure the education-job mismatch. Graduates whose jobs are somewhat related or unrelated to their education are assigned a value of 1, while those whose jobs are closely related to their fields are assigned a value of 0. The WA approach was selected for several reasons. First, in the Afghan context, standardized occupational classification systems (such as the ISCO framework commonly used in objective mismatch measures) are not reliably applicable due to the informal and fragmented nature of the labor market, where many job titles and roles do not map cleanly to standardized categories. Second, the WA method has been widely applied in the education-job mismatch literature (e.g., Badillo-Amador & Vila, 2013; Bender & Roche, 2013; Boudarbat & Chernoff, 2012; Shevchuk et al., 2015) and is particularly appropriate when the goal is to capture the graduate's own perception of the alignment between their training and their current job. Third, self-assessment captures dimensions of field relevance that objective measures may miss, including partial matches and overlapping skill demands. Nevertheless, it is important to acknowledge that the WA method is not without limitations. Self-reported assessments are inherently subjective, as individual graduates may differ in how strictly or loosely they interpret the relatedness of their job to their field of study. This subjectivity can introduce measurement error and may affect the comparability of responses across respondents. These limitations should be considered when interpreting the findings.

Independent Variables: The main priority of this research is to investigate the impact of gender and ethnic inequalities on finding a job related to the field among those who obtained their degree from Kabul University in 2015. Thus, the leading independent variables are gender and ethnicity groups.

Control Variables: We included a set of control variables in the model to isolate the effects of the main independent variables and control for confounding factors. Previous studies provide in-depth insight to understand better what factors influence mismatch. Following prior studies, the most relevant demographic, educational, and occupational variables were included as control variables in the model. Table 1 (a, b, c, d) provides a detailed description of the measurement of all independent variables.

Table 1a. Demographic Characteristics

Variables	Descriptions
Personal Demographic	
Female	1 if the respondent is female, 0 if male
Married	1 if the respondent is married, 0 if single
Ethnicity	
Pashtun	1 if the respondent belongs to Pashtun ethnicity, 0 otherwise
Tajik	1 if the respondent belongs to Tajik ethnicity, 0 otherwise
Hazara	1 if the respondent belongs to Hazara ethnicity, 0 otherwise
Uzbek	1 if the respondent belongs to Uzbek ethnicity, 0 otherwise
Parental Education	
Father's education	Based on years of schooling
Mother's education	Based on years of schooling

Table 1b. Education and Work Experience

Variables	Descriptions
Field of Study	
Economics	1 if studied Economics, 0 otherwise
Law - Political Science and Public Administration	1 if studied this field, 0 otherwise
Psychology	1 if studied Psychology, 0 otherwise
Language and Literature	1 if studied languages (English, Persian, Pashtu, Chinese, etc.), 0 otherwise
Sharia Studies	1 if studied Islamic-related fields, 0 otherwise
Social Science	1 if studied Anthropology, Sociology, History, etc., 0 otherwise
Pharmacy	1 if studied pharmaceutical-related fields, 0 otherwise
Arts	1 if studied arts-related fields, 0 otherwise
Engineering	1 if studied engineering fields, 0 otherwise
Academic Performance	
Master's degree	1 if Master's graduate, 0 if Bachelor's
Grade	Average grade in percentage (55–100)
Work Experience	
Working before the program	1 if had a job before university, 0 otherwise
Working during the Program in a job closely related to the field of study	1 if worked in a related job during studies, 0 otherwise

Table 1c. Job Characteristics

Variables	Descriptions
Type of Employment	
Permanent job	1 if permanent, 0 if temporary
Self-employment	1 if self-employed, 0 if salaried
Job Sectors	
Service	1 if works in service sector, 0 otherwise
Business	1 if works in business sector, 0 otherwise
Job Search Methods	
Job Advertisement	1 if job found through advertisement, 0 otherwise
Contact Employer directly	1 if job found by direct contact, 0 otherwise
Friends	1 if job found through friends, 0 otherwise

Table 1d. Job Position

Variables	Descriptions
Director	1 if director, 0 otherwise
Deputy Director	1 if deputy director, 0 otherwise
Manager / Office clerk	1 if manager/office clerk, 0 otherwise
Staff	1 if staff/elementary worker, 0 otherwise
Lecturer/Teacher	1 if lecturer/teacher, 0 otherwise
Lawyer	1 if lawyer, 0 otherwise

3. Results and Discussion

3.1 Descriptive results

Tables 2 and 3(a - e) summaries descriptive statistics of dependent and independent variables. Table 2 demonstrates that numerous Kabul University graduates who received their degrees in 2015 (55.5 %) are mismatched, meaning they could not use what they learned during their studies in the labor market.

Table 2. Frequency distribution of the dependent variable (Mismatch)

Dependent Variable	N	%
Mismatch	151	55.5
Match	121	44.5
Total	272	100

Table 3a. Frequency Distribution by Demographic Characteristics

Variables	**Mismatch (%)**	**n**	**Match (%)**	**n**
Gender				
Female	53.7	36	46.3	31
Male	56.1	115	43.9	90
Marital Status				
Married	54.8	80	45.2	66
Single	56.3	71	43.7	55
Ethnicity				
Pashtun	49.1	28	50.9	29
Tajik	57.1	68	42.9	51
Hazara	54.9	39	45.1	32
Others	64.0	16	36.0	9
Parental Education (Mean Years)				
Father's education	9.351	–	10.297	–
Mother's education	4.589	–	4.677	–

Table 3b. Frequency Distribution by Field of Study

Variables	**Mismatch (%)**	**n**	**Match (%)**	**n**
Economics	52.6	20	47.4	18
Law, Political Science & Public Administration	42.4	14	57.6	19
Psychology	58.6	17	41.4	12
Literature	85.7	18	14.3	3
Sharia Studies	16.7	1	83.3	5
Social Science	61.1	11	38.9	7
Pharmacy	58.6	17	41.4	12
Arts	35.3	6	64.7	11
Engineering	36.4	4	63.6	7
Natural Sciences & Geology	70.4	19	29.6	8
Computer Science	68.4	13	31.6	6
Journalism	57.1	8	42.9	6
Agriculture, Veterinary & Environment	76.5	13	23.5	4

Table 3d. Type of Employment and Job Sector

Variables	**Mismatch (%)**	**n**	**Match (%)**	**n**
Type of Employment				
Permanent job	49.7	90	50.3	91
Temporary job	67.0	61	33.0	30
Self-employment	76.9	20	23.1	6
Salaried employee	53.5	131	46.5	114
Job Sectors				
Service	52.6	130	47.4	117
Business	94.1	16	5.9	1
Manufacturing	62.5	5	37.5	3

Table 3e. Job Search Methods and Job Position

Variables	Mismatch (%)	n	Match (%)	n
Job Search Methods				
Job Advertisement	46.0	57	54.0	67
Contact employer directly	75.0	6	25.0	2
Friends	70.2	59	29.8	25
Family	69.6	16	30.4	7
Through University	8.3	1	91.7	11
Others	54.5	12	45.5	10
Job Position				
Director	58.3	7	41.7	5
Deputy Director	66.7	16	33.3	8
Manager/ Office clerks	54.8	40	45.2	33
Staff	87.5	14	12.5	2
Lecturer/Teacher	51.3	39	48.7	37
Lawyer	18.8	3	81.3	13
Others	58.2	32	41.8	23

3.2 Empirical Results and Discussion

The primary aim of this study is to investigate gender and ethnic disparities in the incidence of education-job mismatch. Table 4 presents the results of the logistic regression analysis assessing the separate and combined effects of gender and ethnicity. Using this stepwise modeling approach allows us to isolate the net influence of gender and ethnicity, minimizing the impact of potential confounding factors. This estimation indicates that gender (being female) and ethnicity do not exhibit a statistically significant association with the education-job mismatch, whether these variables are assessed individually or together. This pattern remains consistent even in the overall logit regression results reported in Table 5, where all control variables are included. Hence, across all model specifications, it does not appear that gender and ethnicity significantly influence the likelihood of education-job mismatch.

However, when considering the field of study, the analysis reveals that degrees in engineering and pharmacy significantly reduce the mismatch risk compared to the base category of 'Language and Literature.' This finding is consistent with prior studies (Wolbers, 2003; García-Espejo and Ibáñez, 2006; Robst, 2007a; Boudarbat and Chernoff, 2012; Robert, 2014), which illustrate that graduates of "soft" disciplines -such as the social sciences, humanities, arts, and education - face higher education-job mismatch rates, due to their more general curriculum. In contrast, fields emphasizing job-specific skills tend to result in a better match.

As (Robst, 2007a) notes, when the cost of switching jobs is low, job turnover is more likely. General fields offer more transferable skills, making it easier and less costly for graduates to enter various job markets. This flexibility, however, may increase the risk of a mismatch. Thus, graduates of these fields are more prone to experiencing job mismatch. Nevertheless, unexpectedly and contrary to Robst's argument, our findings indicate that fields like Sharia and fine arts—although not necessarily specialized- significantly reduce education-job mismatch compared to language and literature. These degrees may cater to specific labor market needs. Sharia graduates often work as imams, religious teachers, Sharia judges, or Islamic legal advisors in religious and governmental organizations. Moreover, in societies where Sharia law and Islamic teachings play an important role in daily life and the legal system, there is a constant need for experts in this field. Fine arts encompass painting, music, theater, and design. Graduates of these fields may work as graphic designers, artists, art teachers, or art directors. There is a continuous demand for artists and creative professionals to produce artwork, advertising, and cultural content. These unexpected findings suggest that the labor market demand for certain fields can significantly influence the likelihood of education-job mismatch.

The overall logit regression results also imply a negative and significant relationship between graduates' education level and the likelihood of education-job mismatch. Specifically, graduates with master's or doctoral degrees are less exposed to the education-job mismatch than those with only bachelor's degrees. This finding is consistent with previous research (e.g., Bender & Roche, 2013a;

Boudarbat & Chernoff, 2012; Hensen et al., 2009; Robst, 2007a; Wolbers, 2003). One possible explanation is that individuals with a higher degree if they cannot find a job that matches their level of education, may compete for jobs at a lower level but in a related field. In contrast, individuals with lower education levels, due to limited job opportunities in their field, are more likely to accept a position in an unrelated field as an alternative solution if they do not have access to a suitable job, increasing the likelihood of horizontal mismatch among this group (Borghans and De Grip, 2000). Concerning grades, it was found that graduates with good grades from Kabul University were significantly less likely to experience an education-job mismatch. This finding suggests that employers may consider higher grades a strong sign of academic competence and mastery of field-related skills (Grayson*, 2004), reducing the likelihood of an education-job mismatch. Our results are consistent with those of García-Espejo & Ibáñez (2006), Grayson* (2004), and Boudarbat & Chernoff (2012), further underlining the importance of a strong academic record in the labor market.

Moreover, the results underscore the pivotal role of relevant work experience during one's studies in mitigating the education-job mismatch. In simple terms, graduates who were gainfully employed during their studies in positions closely related to their field of study were less likely to face a mismatch than those who were either unemployed or working in unrelated fields. This finding, in line with Robert's (2014) research, highlights the practical benefits of experiential learning and internships. Several factors can account for this finding. Work experience equips students with job-specific skills, a grasp of market demands, and a boost in confidence, enhancing their prospects of securing a suitable job after graduation.

Our analysis of job characteristics reveals a significant trend. Self-employed graduates are more likely to face an education-job mismatch than those in salaried or wage-based employment. This may suggest a lack of formal job opportunities, leading graduates to pursue self-employment, even if it doesn't align with their academic background. Self-employed jobs often require skills and experiences that may not align with an individual's field of study. Importantly, our findings are consistent with Bender & Roche (2013) and Ghosh & Grassi (2020), providing a robust foundation for our analysis. Moreover, our research indicates a striking difference between sectors. Employment in the business sector is significantly associated with a higher likelihood of mismatch compared to the service sector. This finding echoes that of Meliciani & Radicchia (2016), underscoring the sectoral differences in education-job mismatch. The mode of job search also matters. Graduates who found their jobs through friends were significantly more likely to be mismatched. This outcome is also consistent with the research of Bentolila et al. (2010), Ghosh & Grassi (2020), Matsuda & Nomura (2025), and Meliciani & Radicchia (2016). These studies point out that informal job search channels, such as social networks (friends, family, relatives, etc.), can increase the likelihood of an education-job mismatch. While these networks can provide quick access to employment, they may lead to positions that do not align well with one's education or skills. In many cases, job-seekers may accept such opportunities out of necessity or fear of unemployment, a significant factor that can decrease the quality of job matches among individuals who enter the labor market through these routes (Matsuda & Nomura,2025). Lastly, job position also plays a role in the education-job mismatch. Graduates in primary staff positions are significantly more likely to experience an education-job mismatch. However, being a lawyer is associated with a significantly decreased likelihood of education-job mismatch, indicating that specialized professions play a key role in reducing mismatch. This result reinforces findings from earlier research (e.g., Farooq, 2011; Witte & Kalleberg, 1995), which show that individuals in specialist occupations, managerial roles, professional positions, and associate professional employment face lower mismatch risks compared to those in elementary or unspecialized occupations.

Table 4. Logit regression results - separate and combined effects of gender and ethnicity

Variables	Model 1	Model 2	Model 3
Female	0.735 (-0.0955)		0.758 (-0.0886)
Ethnicity (Ref. = Pashtun):			
Tajik		0.318 (0.3227)	0.308 (0.331)
Hazara		0.514 (0.2329)	0.519 (0.2302)
Others		0.216 (0.6104)	0.228 (0.5974)

Note: Numbers outside parentheses represent P-values, while numbers in parentheses indicate estimated coefficients (logit β). Model 1 includes only gender, Model 2 includes only ethnicity variables, and Model 3 includes both gender and ethnicity variables.

Table 5. Overall logit regression results

Variables	Coefficient	SE	Odds Ratio
Demographic Characteristics			
Personal Demographic:			
Female	0.2650	0.5469	1.3035
Married *(Ref. = Single)*	0.0403	0.3528	1.0411
Ethnicity (Ref. = Pashtun)			
Tajik	0.3502	0.6201	1.4194
Hazara	-0.0695	0.4874	0.9328
Others	0.5743	1.1573	1.7759
Parental Education:			
Father's education	-0.0520	0.0309	0.9492
Mother's education	0.0195	0.0357	1.0196
Education and Work Experience			
Field of Study (Ref. = Literature)			
Economics	-0.9483	0.3234	0.3873
Law - Political Science and Public Administration	-1.1001	0.2864	0.3328
Psychology	-1.1311	0.2803	0.3226
Sharia Studies	-1.5547	0.1951	0.2112*
Social Sciences	-0.9556	0.3466	0.3845
Pharmacy	-2.8186	0.0833	0.0596**
Arts	-2.7579	0.0602	0.0638***
Engineering	-1.9587	0.1436	0.1410*
Natural Sciences and Geology	-0.7132	0.4247	0.4900
Computer Science	-0.3064	0.6648	0.7360
Journalism	-0.6549	0.4974	0.5194
Agriculture, Veterinary, and Environment	-0.0789	0.8834	0.9241
Academic Performance:			
Master's and Doctorate degree *(Ref. =Bachelor's degree)*	-1.4979	0.2235	0.1664**
Grade	-0.0435	0.0217	0.9573*
Work Experience:			
Work experience before the program	0.0136	0.0110	1.0137
Working during the Program in a job closely related to the field of study	-1.1258	0.1897	0.3243**
Job Characteristics			
Type of Employment:			
Permanent job	-0.1266	0.3343	0.8810
Self-employment	1.3447	2.8295	3.8370*
Job Sectors:			
Service	0.6696	1.9917	1.9536
Business	2.8892	27.0719	17.9805*
Job Search Methods:			
Job Advertisement	-0.4144	0.3048	0.6606
Contact the Employer directly	1.1084	3.3112	3.0297
Friends	0.9094	1.2651	2.4829*
Job Position:			
Director	-0.8715	0.3765	0.4182
Deputy Director	1.1099	2.1087	3.0342
Manager/ Office clerks	0.0159	0.4941	1.0160
Staff	2.2983	10.1490	9.9576**
Lecturer/Teacher	-0.1736	0.4189	0.8405
Lawyer	-2.2580	0.0987	0.1045**
Constant	3.9800	118.656	53.5187*
N=272 LR $Chi^2(36)$=100.45 Prob > Chi^2=0.000 Pseudo R^2 =0.2699			

Note: ***p<0.01; **p<0.05; *p<0.1

To further assess model robustness, several diagnostic checks were conducted. The overall model fit is supported by a statistically significant likelihood ratio chi-square statistic (LR Chi2(36) = 100.45, p < 0.001) and a McFadden's Pseudo R^2 of 0.27, indicating a reasonably good fit for a cross-sectional logistic regression model. Multicollinearity was assessed by examining variance inflation factors (VIFs) for all independent variables; all VIFs were below the commonly accepted threshold of 5, suggesting that multicollinearity does not pose a serious concern in the model. The model's classification accuracy was evaluated using the percentage of correctly classified observations, which stood at approximately 72%, indicating adequate discriminatory performance. Additionally, a Hosmer–Lemeshow goodness-of-fit test was performed; the non-significant result (p > 0.05) suggests that the model fits the data adequately and that the observed and expected event rates are comparable across deciles of predicted probability. Taken together, these diagnostics support the overall validity and robustness of the logistic regression model reported in Table 5.

5. Conclusion

This article examined the determinants of education-job mismatch among individuals who graduated from Kabul University in 2015, with a particular emphasis on the roles of gender and ethnicity. This research was conducted in the context of a society marked by longstanding structural inequalities. These inequalities have been institutionalized over time and may have affected various aspects of individuals' lives, particularly in terms of differential employment outcomes. Ethnic and gender inequality are the most significant types of these disparities. The primary objective of this study was to assess the impact of these two inequalities on the likelihood of experiencing an education-job mismatch in the labor market after graduation. More precisely, the study aimed to understand whether female graduates and those from ethnic minority backgrounds who graduated from Kabul University in 2015 are more likely to experience an education-job mismatch.

For this purpose, we collected the required data through a stratified random sample of 272 Kabul University graduates in 2015. The data collection methods included a questionnaire and telephonic interviews. We employed a logit regression model to analyze the data and examine the research hypothesis. To address potential estimation bias and precisely assess the impact of gender and ethnicity variables, a set of control variables comprising demographic, educational, and occupational characteristics is included in the model.

Despite controlling for several variables related to education-job mismatch, the results of the logistic regression analysis revealed that neither the gender nor the ethnicity of the graduates under study had a statistically significant effect on the likelihood of education–job mismatch. In other words, among the graduates examined, no significant differences were found between men and women or among different ethnic groups in terms of obtaining employment related to their field of study in Afghanistan's labor market. Fortunately, our main findings underscore that, despite the deeply rooted gender and ethnic disparities in Afghan society, the labor market provided relatively equal opportunities for all 2015 graduates of Kabul University and up to 2019, the year when the data were collected—regardless of their gender or ethnic background, in securing jobs aligned with their education. This result is theoretically significant. Unlike studies conducted in Western and middle-income country contexts, where racial and gender minorities are frequently shown to face higher mismatch risks (e.g., Robst, 2007b; Bender and Roche, 2013; Hensen et al., 2009), the present study demonstrates that such patterns do not necessarily hold in post-conflict, low-income settings where informal labor market mechanisms may operate differently. The finding suggests that the matching process in Afghanistan's labor market may be driven more strongly by structural characteristics such as field of study, academic performance, and job search channels than by social identity markers. This contributes to the education-job mismatch literature by challenging the assumption of a universal relationship between social inequality and labor market mismatch and by extending the empirical base of this literature to fragile and conflict-affected country contexts.

Although our findings suggest relatively equal opportunities for all 2015 Kabul University graduates to secure employment related to their fields of study, it is essential to acknowledge that this current state of equality may change over time. Therefore, it is recommended that the Afghan

government and relevant institutions pay greater attention to strengthening and maintaining this pattern of gender and ethnic equality in the country's labor market. To this end, it is suggested that academic institutions and policymakers periodically conduct similar studies using new samples to identify and manage any emerging trends of inequality promptly.

A significant limitation plagues this study. It is focused exclusively on a specific population graduates of Kabul University in 2015 which limits the generalizability of the results to the broader Afghan labor market and all graduates of Kabul University. A broader investigation covering graduates from various universities across different years could have offered a more comprehensive and accurate understanding of gender and ethnic disparities in the labor market, thereby enhancing the generalizability of the findings. Future studies may overcome these limitations, provided that researchers are granted the opportunity to conduct large-scale surveys and collect extensive data. Beyond the sampling scope, several additional limitations merit acknowledgment. First, the data rely entirely on self-reported information, meaning that both the measurement of mismatch (via the Worker Self-Assessment approach) and all other variables depend on respondents' subjective recall and self-perception. Self-reported data are susceptible to social desirability bias, wherein respondents may over-report positive employment outcomes, and to variation in how individuals interpret the concept of field-relatedness. Second, data were collected in 2019, approximately four years after graduation. This time lag introduces the possibility of recall bias, as graduates may not accurately remember the details of their employment trajectory or early career experiences. Conditions in the labor market may also have changed considerably over the intervening period, meaning that responses reflect a retrospective rather than a contemporaneous account of employment. Third, unemployed graduates were excluded from the final analytical sample. Since 46 male and 33 female graduates (a total of 79 individuals) were not employed at the time of data collection and therefore could not be assessed for mismatch, the findings apply only to employed graduates. This exclusion may introduce selection bias: if unemployed graduates would have been disproportionately mismatched, or if unemployment itself is systematically related to gender or ethnicity, the exclusion of this group could affect the conclusions drawn about labor market equality. Finally, the findings of this study are specific to the 2015 cohort of Kabul University graduates and should not be generalized to other graduation cohorts, other universities, or Afghanistan's labor market more broadly. Kabul University, as one of the most prestigious public universities in Afghanistan, attracts a relatively select population, and its graduates may face labor market conditions that differ substantially from those of graduates at regional or smaller institutions.

6. References

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