# Analysis of Education Occupation Mismatch at Pakistani Educational Institutions

**Misbah Akhtar**[*]
**Muhammad Javed**[**]
**Shaista Noreen**[***]

## Abstract

*Education-occupation mismatch directly or indirectly affects the professional development and performance of employees. The current study aimed to explore the determinants of three type of occupation and job mismatch; field of study mismatch, education mismatch and qualification mismatch between admin and teaching staff of educational institutions in Pakistan. The sample selected through convenient sampling technique consisted of 181 respondents from schools, colleges and a university. Worker Self-assessment (WSA) and Job Analyst (JA) methods were used for the measurement of education-job mismatch while subjective approach was applied to measure qualification mismatch. Multinomial Logistic Regression was applied to estimate the determinants of qualification job-mismatch and education-job. The results revealed that the respondents' age, monthly income, location and nature of job were the major determinants of job mismatch in teaching and non-teaching staff. The results of the study also indicate that majority of the teachers have jobs according to their education as compared to non-teaching staff. JA and WSA methods also show that teaching staff was under and over-educated. As regards qualification-mismatch, the majority of males from admin side were under qualified while the majority of female teaching staff was over-qualified. The results show that, in the field of study job mismatch, the majority of female teachers have relevant education while the majority of males from admin side have irrelevant education from their occupation. The phenomenon of field of study and job mismatch exist in Pakistan; therefore, policy makers should take care of these matters while planning for providing education.*

**Keywords**: Educational mismatch, occupation, teachers, educational institutions

[*]PhD Scholar, Department of Education .The Islamia University of Bahawalpur, Pakistan. Corresponding author Email: misbah.akhtar@iub.edu.pk
[**]Assistant Professor. Department of Education. The Islamia University of Bahawalpur, Bahawalnagar Campus, Pakistan, Email: muhammad.javed@iub.edu.pk
***PhD Scholar, Department of Education, The Islamia University of Bahawalpur.

## Introduction

Education is considered as a strong weapon for the development of a nation. Educated nations are dominating all over the world. The nations which invest on education with planning get better results and educated persons in society have to make extra efforts to get a better job. However, sometimes they don't find compatible job according to their qualifications. This is called educational mismatch of job with occupation. Humal (2013) found that such types of education-occupation has positive link with unemployment. Why is it happening? To answer this question, Safdar (2009) states that universities in Pakistan ignore the importance of relevancy. This mismatch results in unemployment in Pakistan. The main reason behind this mismatch is unavailability of suitable job according to the level of education which is called job-education mismatch or education mismatch. This phenomenon is mostly faced by the newly qualified graduates (Senarath, Patabendige, & Amarathunga, 2017). Nazli (2004) discussed reasons of education-occupation mismatch. These are, as meager level of information about job opportunities, poor level of information, geographical barriers, gender and race etc. Customs of Pakistani society and socio-demographic characteristics are also regarded as major constrains in the way of female's labor. Moreover, labor market is conquered by the untrained and less educated workers because of poor performance of education sector. In Pakistan hardly some literature is available that may be examined the returns to experience (Nazli, 2004).

Education mismatch, generally, refers to the deficiency of coherence between the requisite and accessible educational level for any given job (Betti, D'Agostino, & Neri, 2011). Gladwell (2008) identified the issue of mismatch first time in 1870 (Gladwell, 2008). The rational result of this issue is the presence of over educated when skills exceed the required skills and under educated workforces if skills are substandard to the required skills. Both situations have negative impact on labor market (Betti et al., 2011). The same situation is described by Nordin, Persson, and Rooth (2010).

### *Education-Job Mismatch*

Education-job mismatch is determined by equal education by an employee required for the present post. This mismatch is classified into three categories, 1) over education 2) under education(European Centre for the Development of Vocational Training, 2010) and 3) adequately educated.

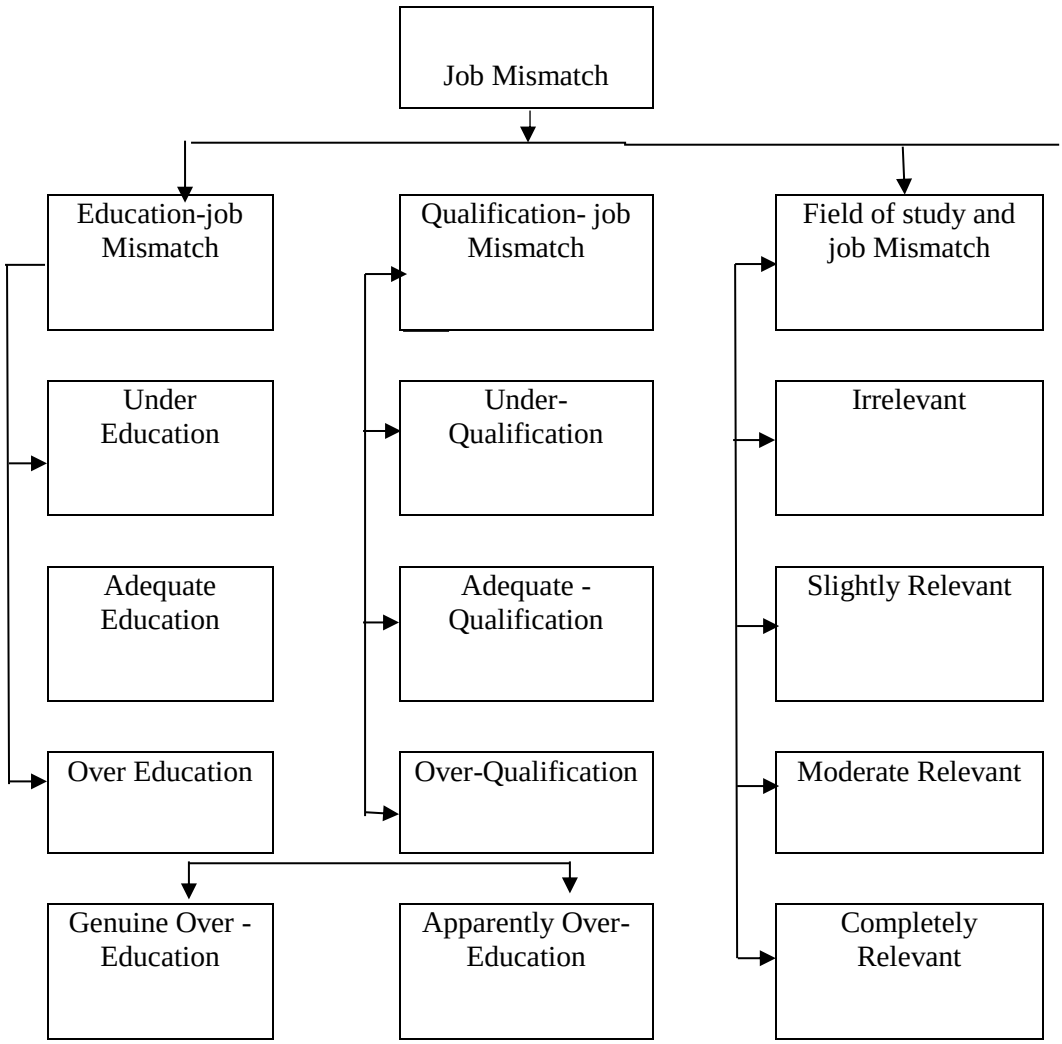


**Figure 1** *Mismatch between education and occupation*

The over educated is further divided in two categories; namely 1) those who are contented over their mismatch are defined as apparently over- educated 2) and the employees who are displeased are called genuinely over-educated. A conceptual framework is drawn that is in line with Farooq (2011) in above diagram.

Three methods have been found to calculate education-job mismatch. First one is Job analyst (JA), which is an objective approach in nature. Second method is worker

self-assessment method which is a subjective approach and the third one is Realized Method (RM) which was found by and Verdugo Verdugo (1989).

JA is normative method (Flisi, Goglio, Meroni, Rodrigues, & Vera-Toscano, 2017). In JA, the professional expert of a job ranks and fix the minimum criteria for an occupation or job (Hartog, 2000). In WSA, worker himself/ herself provides information about the minimum educational requirement of the existing job (Alba - Ramirez, 1993). RM measures the education–job mismatch method with the help of two variables; occupational group of employees and years of schooling (Verdugo & Verdugo , 1989, Flisi& others, 2017).

### *Mismatch Regarding Qualification*

Two approaches for the measurement of qualification mismatch are present in literature. The first approach namely overall qualification approach is measured by the worker‘s perception (Green & McIntosh, 2007; Badillo-Amador, Garcia-Shnchez, & Vila, 2013). The second approach namely specific approach is based by measuring the different particular attained skills acquired by the workers and the demanded skills in their present job as (Badillo-Amador et al., 2013) Lourdes, Badillo-Amador, Garcia-Sanchez, and Villa (2005) and Chevalier and Lindley (2009) stated.

Workers will be considered mismatched in qualification, when the attained qualification of the worker is less or greater than the required qualification. This is called mismatch in qualification.

The main reason behind this mismatch is that an individual cannot find suitable job according to his/her level of education. This is called job-education mismatch (Senarath, Patabendige, & Amarathunga, 2017). Many studies conducted in Europe, U.S. and Asia show that 30% to 40 % of workers have educational qualifications that do not match to the requirements of the firm (Alba-Ramirez, 1993).

### *Field of Study and Job Mismatch*

Studies (e.g., Lourdes et al., 2005; Chevalier & Lindley, 2009) have been conducted on education and job mismatch. Very few deal with qualification mismatch but least attention is provided to field of study and job mismatch. The field of study and job mismatch deals with individual’s field of study and her/his contents of job. Robst (2007) was pioneer to discuss field of study and job mismatch The results of the Robst’s (2007) study indicate that 21% of females and 28% of males have somewhat related job whereas 21% of women and 19% of men have absolute mismatch between occupation and field of study.

Before 1980, the US and UK as developed countries started to invest greatly on the promotion of graduates. In 1960, Freeman was the first man who wrote in his research entitled ‘overeducated Americans’ (Farooq, 2011). With the passage of time

more and more emphasis is given on education. That is why various people get involved in education process. Due to this reason in many developed countries, the phenomenon of 'over education' is observed which ranges from 10 to 40% (Alba-Ramirez, 1993). A study reflecting the education occupation mismatch in Pakistan conducted by Farooq(2011) shows that one third of the Pakistani graduates have mismatch in qualifications. 50% of these are under qualified and the rest 50% are over qualified. Analysis of data also displays that 11.3% of graduates have irrelevancy to their field of discipline. The results indicate that women have more mismatch education than men in field of study.

Senarath et al., (2017) find out that economy of Sri Lanka is not able to absorb the newly passed out graduates to compatible jobs. As a result of this precarious situation, graduates are forced to take up job that were for undergraduate. Berlingieri and Erdsiek, (2012) state that overqualified graduates in Germany remain stuck to current job because of lack of job alternatives and avoidance from unemployment. Another study by Senarath and Patabendige (2014)shows that educational mismatch exists in Sri Lankan graduates. A large number of studies show that mismatch is directly related with lower earnings (Groot & Van Den Brink, 2000 ;Chevalier & Lindley, 2009) while some other studies (e.g., Badillo-Amador & Vila, 2013; Bender & Heywood, 2009); European Centre for the Development of Vocational Training, 2010) have discovered that it is associated with lower job satisfaction. Iriondo and Pérez-Amaral(2016) has avowed that over education is just a waste of resources and authorities should take action for controlling over education. Due to the scanty of research work on education mismatch in educational institutions and keeping in view the importance of matched and mismatched education, there is dire need of study which may measure this phenomenon in educational institutions in Pakistani. This study intends to measure job mismatch in educational institutions in order to find out whether this phenomenon is present in educational institutions of Pakistan. Moreover, it also aims to measure the intensity of its presence. In view the current situation, the current study aims to explore the determinants of three type of job and occupation mismatch; namely education mismatch, field of study mismatch and qualification mismatch between teaching and admin staff at educational institutions in Pakistan.

### *Objectives of the Current Study*

This study focused to achieve following objectives

1. To measure three type of job mismatch; namely, education-occupation mismatch, field of study- occupation mismatch and qualification and occupation-mismatch among educational institutions.
2. To compare three type of job mismatch e.g. education-occupation mismatch, field of study- occupation mismatch and qualification and occupation-

mismatch among teaching and non-teaching staff among educational institutions.

3. To ascertain factors which determine the three types of job mismatch among educational institutions?

## Research Methodology

The study is descriptive in nature. Teaching and admin staffs of public schools, government boys and girls degree colleges and a public university were addressed in the current study. 181 respondents i-e 20% of the population, were selected by using convenient sampling technique. A questionnaire was used as a tool for the collection of data. Reliability of the instrument was established through a pilot study where ten respondents participated in the pilot study. Calculated value of Cronbach Alpha was 0.89 that indicates high reliability rate. The current study was delimited to only educational institutions in Pakistan due to limited resources and time .The sample of the study comprised of 49.2% females and 50.8% males. The majority of respondents (88.4%) were teachers by profession while 11.6% were administrators. The majority of respondents from teaching side were females whereas most of the respondents belonging to admin side were males. 80% respondents' possessed professional qualification; namely B.Ed. With regard to the respondents' association with institutions, 66.9% belonged to schools, 18.2% were taken from colleges while 14.9 % were from university however majority of admin were from university.

## Analysis of Data

*The Measurement of Education-Job Mismatch*

The phenomenon of education job mismatch is measured by comparing the attained education of the worker to required education by the employees. Workers are divided into three categories i-e under-educated, over-educated and adequately-educated. Empirical studies express that for the measurement of education job-mismatch three methods are used i-e Worker Self-Assessment (WSA), Job-Analyst (JA), and Realized method (RM). In this study job- mismatch is sketched only by first two methods, JA and WSA.

In JA Method, respondents provided minimum level of education demanded by the employees for the present job. In WSA method required level of education was found out by asking about their required level of education and experience for present job. E stands for definite number of years of education and $E^r$ is required number of education for a job, while phenomenon of over education ($E^o$) is denoted as;

$E^{o}=E-E^{r}$ if $E>E^{r}$ and (1)

$E^{o}=0$ otherwise

Under-education ($E^{u}$) is measured as;

$E^{u}=E^{r}-E$ if $E^{r}>E$ and (2)

$E^{u}=0$

*The Measurement of Qualification Mismatch*

Qualification mismatch is measured by equating the required education and attained qualification by each employee. Employees are divided into three categories called under-qualified, over-qualified, and adequately qualified. For the measurement of qualification mismatch two approaches are used; namely, subjective approach and specific approach. In the questionnaire, the researchers asked the two questions to measure qualification mismatch by using subjective approach.

If answers of both the questions provided by the respondents were positive, they were considered over-qualified. In case respondents' answer was "Yes" to the first question and "No" to the second question, then they were declared as exactly qualified persons. However, if respondents' answers were reported negative to the first question, they were considered as under-qualified irrespective of their response to the 2nd question.

*The Measurement of Field of Study and Job Mismatch*

This type of mismatch is find out by using subjective approach. For this purpose the respondents were asked about the relevancy of recent job to his/her area of education. Four options i-e highly relevant, relevant, moderately relevant, slightly relevant and irrelevant were provided to respondents'. First two categories such as highly relevant and completely relevant were combined into the category of relevant field of study while the last two options; namely, irrelevant, slightly irrelevant were combined into the category of irrelevant field of study.

*The Methodology to measure the Determinants of Job Mismatch*

To find the determinants of three types of job mismatch following equations were used

$$MIS^{sa}_{ki}=\alpha_0+\alpha_1 I_{ki}+\alpha_2 Ed_{ki}+\alpha_3 Wk_{ki}+\mu_{2i} \quad (3)$$

$$MIS^{j}_{ki}=\alpha_0+\alpha_1 I_{ki}+\alpha_2 Ed_{ki}+\alpha_3 Wk_{ki}+\mu_{1i} \quad (4)$$

$$MIS^{q}_{ki}=\alpha_0+\alpha_1 I_{ki}+\alpha_2 Ed_{ki}+\alpha_3 Wk_{ki}+\mu_{3i} \quad (5)$$

$$MIS^{h}_{ki}=\alpha_0+\alpha_1 I_{ki}+\alpha_2 Ed_{ki}+\alpha_3 Wk_{ki}+\mu_{4i} \quad (6)$$

Third and fourth equations measure the determinants of the education-job mismatch. In this equation, $MIS^{sa}_{ki}$ stands for education job mismatch estimated by WSA and $MIS^{j}_{ki}$represents the education-job mismatch measured by JA.

Fifth equation is used to measure the determinants of qualification mismatch where $MIS^{q}_{ki}$ represents the qualification mismatch. The Sixth equation deals with the determinants of "field of study and job mismatch". In this equation $MIS^{h}_{ki}$ represents the field of study and job mismatch. In above mentioned four equations, $I_{ki}$ is the vector of independent variables which measures different characteristics of respondents i-e age, gender, parents education, marital status, family income etc.

Since equation three, four and five have three outcomes; therefore Multinomial Logistic Regression was applied to measure the determinants.

Table1

*Education-job mismatch by using different approaches gender wise*

| | Measures | f | Under-educated | f | Matched | f | Over-educated | N |
|---|---|---|---|---|---|---|---|---|
| JA Method | Male | 7 | 8.04 | 68 | 78.16 | 12 | 13.79 | 87 |
| | Female | 3 | 4.91 | 46 | 75.4 | 12 | 19.67 | 61 |
| | Total | 10 | 6.75 | 114 | 77.02 | 24 | 16.21 | 148 |
| WSA Method | Male | 8 | 9.03 | 69 | 80.23 | 9 | 10.46 | 86 |
| | Female | 9 | 15.25 | 37 | 62.71 | 13 | 22.03 | 59 |
| | Total | 17 | 11.72 | 106 | 73.10 | 22 | 15.17 | 145 |

The data presented in Table 1 represents the level of education –job mismatch. It shows that phenomenon of job mismatch varies by three measures. In case of over education, it is 16.21% according to JA method and 15.17% under WSA method. In case of matched education, it is 77.02% under JA method and 73.10% under WSA method. In addition, in case of under-education, it is 6.75% according to JA method and 11.72% under WSA method.

Table2

*Measurement of level of education-job mismatch by using various approaches*

| | Measures | f | Under- | f | Matched | f | Over- | N |
|---|---|---|---|---|---|---|---|---|
| JA Method | Admin | 3 | 15.8 | 10 | 52.63 | 6 | 31.57 | 19 |
| | Teaching | 7 | 5.42 | 104 | 80.6 | 18 | 13.95 | 129 |
| | Total | 10 | 6.75 | 114 | 77.02 | 24 | 16.21 | 148 |
| WSA Method | Admin | 3 | 15.78 | 11 | 57.89 | 5 | 26.31 | 19 |
| | Teaching | 14 | 11.11 | 95 | 75.39 | 17 | 13.49 | 126 |
| | Total | 17 | 11.72 | 106 | 73.10 | 22 | 15.17 | 145 |

Table 2 shows education- job mismatch between teaching and non-teaching staff. It is 16.21% in case of over education under Job Analyst method and 15.17% through WSA method. In case of under–education, it is 6.75% under JA method and 11.72% via WSA method. Matched education through JA is 77.02% and 73.10% through WSA method.

Table 3

*Level of qualification mismatch*

| Category | f | Under Qualified | f | Accurately Qualified | f | Over Qualified | Total |
|---|---|---|---|---|---|---|---|
| Admin | 8 | 38.09 | 2 | 9.52 | 11 | 52.38 | 21 |
| teaching | 27 | 19.01 | 10 | 7.04 | 105 | 73.94 | 142 |
| Total | 35 | 21.74 | 12 | 7.36 | 116 | 71.16 | 163 |
| Female | 11 | 14.47 | 6 | 7.89 | 59 | 77.63 | 76 |
| Male | 24 | 27.58 | 6 | 6.89 | 57 | 65.51 | 87 |
| Total | 35 | 21.47 | 12 | 7.36 | 116 | 71.16 | 163 |

With regard to qualification mismatch, Table 3 shows that in case of over qualification, 73.94% teaching and 52.38% admin staff were over qualified.77.63% females and 65.51% males were over qualified. In case of under qualifications, 38.09% administration and 19.01% teaching staff were under qualified. 27.58 % maleswhile14.47% females were under qualified.9.52% admin whereas 7.04% teaching staff were accurately qualified. As regards qualification mismatch, the results indicate that in case of over qualification, 71.16% were over qualified. 21.74%were under-qualified and 7.36%were accurately qualified.

Table 4

*Field of study and job mismatch*

| Category | f | Irrelevant | f | Relevant | Total |
|---|---|---|---|---|---|
| Admin | 9 | 42.8 | 12 | 57.14 | 21 |
| teaching | 7 | 5.93 | 111 | 94.06 | 118 |
| Total | 16 | 11.51 | 123 | 88.48 | 139 |
| Male | 12 | 13.63 | 76 | 86.36 | 88 |
| Female | 4 | 7.84 | 47 | 92.15 | 51 |
| Total | 16 | 11.51 | 123 | 88.48 | 139 |

Table 4 shows that 94.06% teaching staff has relevant job to their education as compared to admin staff. On the other hand, 92.15% female staff has more relevant education as compared to their male counterparts

Table 5

*Determinants of Education-Job Mismatch-Multinomial Logit Model (Relative Risk Ratios)*

| **Repressors** | **Worker Self-Assessment(WSA)Approach** | | | | **Job Analyst(JA)Approach** | | | |
|---|---|---|---|---|---|---|---|---|
| | **Under/Over** | | **Match/Over** | | **Under/Over** | | **Match/Over** | |
| | **Coef.** | **Std. Error** | **Coef.** | **Std. Error** | **Coef.** | **Std Error** | **Coef.** | **Std. Error** |
| Log of age | 2.021* | .970 | 1.302** | .757 | .716* | 1.017 | 1.338** | .725 |
| Age | -.103* | .073 | -.050* | .041 | .037** | .079 | .021 | .051 |
| Nature of Job(admin=0) | -20.333** | 1153.437 | -18.034** | 1153.436 | -.686** | 1.780 | -1.527 | 1.269 |
| Gender(female=0) | -2.169 | 1.350 | -1.465** | .877 | -.986* | 1.523 | -.097** | .947 |
| Level of education in years | 42.119** | 49826.853 | 55.082** | 1989.482 | 22.585** | 2216.671 | 38.261** | 14274.845 |
| Experience in years | 42.858** | 49749.851 | 38.794** | 1153.436 | 22.313 | 1.983 | 22.246** | 14228.525 |
| education required by employer | 41.457 | 49749.850 | 39.121** | 1153.437 | 23.655 | 1.608 | 22.890** | 14228.525 |
| experience required by employer | 21.717 | 49736.478 | 23.224 | 1.741 | 21.438 | .000 | 23.204** | 14228.525 |
| attained education is more or less than the required education | 5.629 | 49956.943 | 19.930 | .000 | 3.895 | .000 | 20.326** | 14228.525 |
| Location (rural=00) | 3.291** | 1.881 | 2.801** | 1.652 | .046** | 1.281 | -.085** | .909 |
| LRchi-2(66) | | | 55.208 | | | | 39.979 | |
| Prob>chi2 | | | .000 | | | | .005 | |
| Loglikelihood | | | 87.308 | | | | 82.614 | |
| Pseudo $R^2$ | | | .418 | | | | .319 | |
| N | | | | 181 | | | | |

* represents significantat5%,** indicates significantat10%

Over education is reference category

Table 5 states that nature of job and age has influenced education and occupation association significantly in analysis. As age increases probability of being under educated and being matched with job decreases as compared to being over educated through WSA method. On the other hand, chances of being under educated and having matched education were greater in government jobs as compared to jobs in admin. Moreover, female odds are found to be less under or matched educated as compared to males in reference category is over education through WSA. The level of education and experience increase chances of being under and matched education. Education and experience required by the employee also enhances probability of being under or matched educated as compared to over educated in employees in the study. Through JA method, with the increase in age chance of being under educated increases and matched when reference category is taken over education and vice versa in case of matched education. As compared to males, under education and match education in female is expected to be less when reference category is over education. With the

increase of level of education and experience, probability of being under educated or matched education increases.

Table 6

*Determinants of qualification mismatch*

| Repressors | Qualification Mismatch Approach | | | |
|---|---|---|---|---|
| | Under/Over | | Match/Over | |
| | Co ef. | Std.Error | Co ef. | Std.Error |
| Log of age | -.261** | .465 | .477** | .698 |
| Age | .005** | .030 | -.019** | .054 |
| Nature of Job(admin=0) | 1.242* | 1.073 | -.659** | 1.667 |
| Gender (female=0) | -.435** | .580 | -.898* | .994 |
| Level of education in years | 16.525** | 10729.163 | 21.220 | 1.750 |
| Experience in year | 14.660** | 10729.163 | 19.031 | 1.499 |
| education required by employer | 17.993** | 10729.163 | 19.220 | 1.094 |
| experience required by employer | 17.264** | 10729.163 | 17.877 | .000 |
| attained education is more or less than the required education | 17.140** | 10729.163 | 1.889 | 8602.097 |
| Location(rural =0) | .883* | .655 | -.370** | 1.206 |
| LRchi-2(66) | | 20.514 | | |
| Pseudo $R^2$ | | .187 | | |
| Prob>chi2 | | .42 | | |
| Loglikelihood | | 147.410 | | |
| N | | 181 | | |

The results based on qualification mismatch approach in Table 6 shows as respondents' age increases, probability of being under educated increases as compared to over education and probability of having matched education decreases as compared to over education. In admin job, chances of under education increase and matched education decreases as compared to over education in government job. Probability of females being under qualification increases as compared to male and decreases in matched education when reference category is taken over-education in both cases. As compared to urban area, the probability of residents of rural area increases under qualified as compared to over education and less matched education with occupation with reference of over education. In case of current level of education and experience in years, the probability of under education when reference category is taken over education and matched education increases as compared to over education. Years of education and experience are important determinants of job mismatch. As education in

years increases, the likelihood of under education and matched education increases when over education is taken as reference category. With the increase of years of experiences, the chances of under and matched education increase as compare to over education.

## Discussions and Conclusions

The results of the study reveal that in education sector, job mismatch prevails. This mismatch is either in the form of over education or under education.16.21% employees were over educated while 6.75% and 11.72% undereducated through JA and WSA method respectively. These results are support to the study conducted by Senarath and Patabendige (2014). Mostly staffs have match education that was calculated through JA and WSA method. In the comparison of male with females, mostly males have more matched education. Females are most likely to face over and under education as compared to males. The study of Voon and Miller (2005) supports the results of the study that most of the employees have matched or adequate education.

In connection with the comparison of education- job mismatch and nature of job, it was found that as compared to non-teaching staff, teaching staff have matched education. Mostly admin staffs have over and under education through JA method and WSA method.

As a result of qualification mismatch, it was surprised to notice that more female admin staffs have accurately matched education. The results of the study provide evidence that qualification mismatch exists in Pakistan. The results of this study are supported by the results of Farooq (2011), which show that in Pakistan 1/3 of graduates face qualification mismatch. Majority of females from admin staff was over qualified and males from admin sides were mostly under qualified. Alba-Ramirez, (1993) discusses that over educated people have less job training and experience and have high turnover than other workers. Sutherland (2012) also discusses that 38% employees in United Kingdome were over qualified and 15% don't make use of skills and knowledge they possess. The qualification mismatch phenomenon of over education exists dominantly in Pakistani education institutions. While Lourdes et al. (2005) conclude that there is qualification mismatch with 44% under education and 34% over education persons. As a result of the study regarding job mismatch, it is evident that majority of females teaching staff have relevant education and majority of men from admin side have irrelevant job. Martin, Persson, and Rooth (2008) found that 16% of men and 10% of women have field of study mismatch.

The results of the study show that age, log of age, gender, job of nature, location of the respondents, required level of education and experience for education are important determinants of the study. The results of the study also show that males have greater chances of being matched and under education. As compared to admin staff, teaching staff have matched education. The age has negative association with

qualification mismatch. Respondents from urban side are more likely to have matched education than rural side.

## Recommendations

Based on the results of the study, it is suggested that there should be coordination among different stakeholders regarding demand and supply so that graduates may be produced as per requirements of various organizations. In addition, policy makers should also be activated for providing guidelines for producing the required number of graduates. As results show that the phenomenon of qualification mismatch exists in Pakistan. Therefore, the government is recommended to provide education according to the demands of various industries. Furthermore, the phenomenon of field of study and job mismatch also presents in Pakistan; therefore, policy makers should take care of these matters while planning for providing education.

## References


Alba-Ramirez, A. (1993). Mismatch in the Spanish Labor Market: Overeducation? *The Journal of Human Resources*, *28*(2), 259.

Badillo-Amador, L., & Vila, L. E. (2013). Education and skill mismatches: wage and job satisfaction consequences. *International Journal of Manpower*, *34*(5), 416–428.

Bender, K. A., & Heywood, J. S. (2009). Educational mismatch among Ph. Ds: determinants and consequences. In *Science and engineering careers in the United States: An analysis of markets and employment* (pp. 229–255). University of Chicago Press. Retrieved from http://www.nber.org/chapters/c11623.pdf

Berlingieri, F., &Erdsiek, D. (2012). How relevant is job mismatch for German graduates? Retrieved from https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2179041

Betti, G., D'Agostino, A., &Neri, L. (2011). Educational Mismatch of Graduates: a Multidimensional and Fuzzy Indicator. *Social Indicators Research*, *103*(3), 465–480.

Chevalier, A., & Lindley, J. (2009). Overeducation and the skills of UK graduates. *Journal of the Royal Statistical Society: Series A (Statistics in Society)*, *172*(2), 307–337.

European Centre for the Development of Vocational Training (Ed.). (2010). *The skill matching challenge: analyzing skill mismatch and policy implications*. Luxembourg: Publications Office of the European Union.

Farooq, S. (2011). Mismatch between education and occupation: a case study of Pakistani graduates. *The Pakistan Development Review*, 54(2), 531–552.

Farooq, S. (2011). The Utilisation of Education and Skills: Incidence and Determinants among Pakistani Graduates. *The Pakistan Development Review*, 50(3), 219–244.

Flisi, S., Goglio, V., Meroni, E. C., Rodrigues, M., & Vera-Toscano, E. (2017). Measuring Occupational Mismatch: Overeducation and Overskill in Europe—Evidence from PIAAC. *Social Indicators Research*, *131*(3), 1211–1249.

Gladwell, M. (2008). *Outliers: the story of success* (1st ed). New York: Little, Brown and Co.

Green, F., & McIntosh, S. (2007). Is there a genuine under-utilization of skills amongst the over-qualified? *Applied Economics*, *39*(4), 427–439.

Groot, W., & Van Den Brink, H. M. (2000). Overeducation in the labor market: a meta-analysis. *Economics of Education Review*, *19*(2), 149–158.

Hartog, J. (2000). Over-education and earnings: where are we, where should we go? *Economics of Education Review*, *19*(2), 131–147.

Humal, K. (2013). Education-occupation mismatch and its effect on unemployment in Sweden. Retrieved from http://lup.lub.lu.se/student-papers/record/ 38084 47

Iriondo, I., & Pérez-Amaral, T. (2016). The effect of educational mismatch on wages in Europe. *Journal of Policy Modeling*, *38*(2), 304–323.

Lourdes, Badillo-Amador, A. Garcia-Sanchez, and L. E. Villa (2005) Mismatches in the Spanish Labor Market: Education vs. Competences Match. International Advances in Economic Research, 11, 93–109.

MartinN.,I. Persson, and Dan-Olof Rooth,(2008),–Education-Occupation Mismatch: Istherean Income Penalty?,*IZA Discussion Paper*No.3806.

Nazli, H. (2004). The effect of education, experience and occupation on earnings: Evidence from Pakistan. *The Lahore Journal of Economics*, *9*(2), 1–30.

Nordin, M., Persson, I., &Rooth, D.-O. (2010). Education–occupation mismatch: Is there an income penalty? *Economics of Education Review*, *29*(6), 1047–1059.

Robst, J. (2007). Education and job match: The relatedness of college major and work. *Economics of Education Review*, *26*(4), 397–407.

Safdar, M. (2009) Public and Private Universities inPakistan 'The News [Pakistan], 12 May.

Senarath, S., & Patabendige, S. S. J. (2014). Job-Education Mismatch Among the Graduates: A Sri Lankan Perspective. *Ruhuna Journal of Management and Finance, 1*(2), 1–16.

Senarath, S., Patabendige, S. S. J., &Amarathunga, S. (2017). Sri Lankan Graduate Labour Market: A Status Mismatch.*Journal of Economics, Business and Management, 5(1),* 63-68.

Sutherland, J. (2012). Qualifications mismatch and skills mismatch. *Education + Training*, *54*(7), 619–632.

Verdugo, R. R., & Verdugo, N. T. (1989). The Impact of Surplus Schooling on Earnings: Some Additional Findings. *The Journal of Human Resources*, *24*(4), 629-643.

Voon, D. & Miller, P. W. (2005). Under- education and over education in the Australian Labor Market. *The Economic Record, 81(255*), 22–33.