Job-education mismatch in Kosovo labour market: Is there a gender gap?

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Abstract

This chapter examines the determinants of the incidence of the job-education mismatch in the Kosovo labour market. Using the Labour Market survey 2017 conducted by The Millennium Challenge Corporation (MCC), the study shows 63.5 per cent of the sample reported that their job is not related to the field of study, suggesting a very high job-education mismatch in Kosovo. The probit model regression findings suggest a gender gap explaining the incidence of the job-education mismatch, i.e. males have a lower probability of reporting job-education mismatch than women. The marginal effects show that men compared to women have 3.4 percentage points lower probability of reporting the job-education mismatch. The incidence of job-education mismatch decreases with age (experience). Individual's age as a proxy for experience decreases the likelihood of reporting mismatch. Other variables explaining the job-education mismatch are sectoral and regional dummies. The chapter ends with conclusions and some policy recommendations on improving the job education mismatch, especially for the disadvantaged position of females and avoiding deskilling in the labour market, thus supporting the private sector growth.

Introduction

Although the job-education mismatch has been studied for a long time, especially in the United States economy, it remains an attractive topic for researchers and policymakers in developed and developing and transition economies (Rudakov et al., 2019; Navarro, 2021). The job-education mismatch can affect the labour force, productivity, firms and the economy. As a consequence of the job-education mismatch,   low productivity of workers affects the private sector competitiveness by increasing the cost of training, low earnings of the employees. The importance of the job-education mismatch is acknowledged by various prestigious studies suggesting that, globally, 69 per cent of employers have trouble filling vacancies because of the lack of appropriately skilled applicants (Manpower Group Survey, 202).

Labour markets are often more dynamic than educational systems, which cannot immediately react to technological changes or demand for certain professions. This situation is defined as a race between education and technology (Goldin and Katz, 2009). On the other hand, in some countries, labour markets appear not to offer sufficient jobs requiring higher levels of education. At the same time, there

was an expansion of the supply of education, which increased workforce education, which coupled with the ageing population are among the key contributing factors causing the increase of educational mismatches in the labour market (Flisi et al., 2017).

Although the contributing factors to job-education mismatch may be slightly different from the developed world, the importance of transition economies like Kosovo is crucial. With the youngest population in Europe, with 50% under 25 years of age, Kosovo faces a high unemployment rate (25.9 in 2020). Despite workforce potential, Kosovo's economic growth cannot generate jobs for the entire active labour force that stands as the unutilised resource of our economy. On the other hand, Kosovo experienced the rapid expansion of higher education during the last two decades, but evidence suggests that increased participation appears to have had a devastating effect on the quality of education (Rexhaj, 2016). The increase in educational supply, not accompanied by substantial growth in high-skilled jobs, created an oversupply of university or secondary school graduates, resulting in labour market imbalances and underutilisation of the workforce potential for economic development. Under these circumstances, the job-education mismatch in Kosovo is very high MCC Labour Market survey reports that 63.50 per cent of the individuals in the labour force declared that their job is not related to their field of study, suggesting the need for addressing this issue. As a result, the problem of matching job-education is fundamental for the competitiveness of the economy.

Therefore, this chapter examines the determinants of the incidence of job-education mismatch in the Kosovo labour market, emphasising gender differences. We use data from the Labour Market survey 2017 conducted by The Millennium Challenge Corporation (MCC) to explain the incidence of the job-education mismatch. The remainder of the chapter is organised as follows. The following section discusses the relevant literature, followed by the context of the study. The fourth section discusses methodology, the fifth section discusses results, and the sixth section concludes and offers some policy implications.

Literature Review

There is a growing body in the literature regarding job-education mismatch and their impact on the labour market and productivity. The issue of a horizontal mismatch as a particular form of horizontal job-education mismatch attracted considerable attention among policymakers and researchers as it reflects the congruency between higher education fields and labour market requirements (Rudakov et al., 2019). Despite its attraction, skill mismatch remains an open debate among policymakers. The concept of job-education mismatch is broad and may include various measures (McGuinness et al., 2018), which debate in economics literature has emerged taking skill mismatch based on 'overeducation' or 'undereducation' (Leuven and Oosterbeek, 2011),

which has also become an issue for policymakers for higher education and workforce (Green and Henseke, 2016). The match between skills that individuals possess and jobs requirements are related to individual education background and appropriate training according to the job. Whereas, in cases when individuals' level of education is beyond job requirements, which is also referred to as 'overeducation', 'underemployed', and 'overqualified' refereed as 'vertical mismatch' (Li et al., 2018). Skill mismatch describes vertical mismatch, which includes indicators such as overeducation, undereducation, overkilling and underskilling, whereas skill gaps and skill shortages describe horizontal skill mismatch, which includes unfilled job vacancies or hard-to-fill vacancies (McGuinness et al., 2018). Schweri et al. (2020) defined horizontal skills mismatch dividing into static and dynamic points of view. Static mismatch mainly focuses on workers' skills, whereas from a dynamic point of view, it includes aspects of skill development. Another group of scholars (Sloane, 2003; Robst, 2007a) argue that skill mismatch can derive in two situations: a discrepancy between individuals' education (overeducation) and job vacancies-demands in the market. The second situation is when the individual's educational background does not correspond to the nature of their current job.

Schweri et al. (2020) argue that employees' careers may be harmed as when they enter the labour market, there may be a discrepancy between demands regarding their qualifications and qualifications acquired in their current occupation. These discrepancies in education and skill mismatch literature have led scholars to distinguish between vertical and horizontal skill mismatch. An increasing number of empirical studies have focused on the latter, namely horizontal skill mismatch (Hartog, 2000; Leuven and Oosterbeek, 2011, Somers et al., 2019). Despite that overeducation and over-skilling are considered high for university graduates, there is still limited knowledge regarding workers who finished vocational training (Ghignoni and Verashchagina 2014; Pellizzari and Fichen 2017).

Studies examining vertical mismatch show that employees with higher or lower education than their current job requirements receive lower or higher rewards than their counterparts (Korpi and Tahlin 2009; McGuinness 2006; Nordin et al., 2010). Literature also suggests similar findings for non-tertiary education. For example, workers who have VET diplomas, university, or upper-secondary degrees higher than job requirements are paid less or vice versa (Rohrbach-Schmidt and Tiemann, 2016). Pedulla (2016) shows that the mismatch has negative consequences on those employees with higher qualifications than required in the previous job. The mismatch impact is less when graduates are from fields of study related to occupation-

specific, which has less impact on their earning penalties (Li et al., 2018). In addition, besides overqualification, Kracke et al. (2018) included objective measures such as similarity of occupational skills between past learned and current occupations. This study shows that a horizontal mismatch is more relevant for vocational training workers' wages than a vertical mismatch. More particularly, this study shows that graduates with academic backgrounds earn less in cases of overqualification, even when controlled for similarity of skills, whereas VET graduates earned less when occupation and skills learned are not similar to current jobs skill demands.

In addition to vertical mismatch, there is a growing body in the literature of horizontal mismatch on workers (Robst, 2007b; Béduwé and Giret; 2011; Caroleo and Pastore, 2012; Bartolj et al., 2012). Current literature has focused on two aspects; the match between employees education background and their current jobs and the effect of the labour market on horizontal mismatches (Kirkeboen et al., 2016; Levels et al., 2014; Montt 2015; Van de Werfhorst 2002; Wolbers 2003) these studies were drawn from economic (Kirkeboen et al.,2016; Levels et al., 2014; Montt 2015) and sociological literature (Van de Werfhorst 2002; Wolbers 2003).

Studies examined the effect of wages on horizontal mismatch; however, findings are inconsistent. The first group of studies show that wages have consequences on horizontal mismatch (Robst, 2007a, 2008; Robst and VanGilder 2016; Nordin et al., 2010; Bender and Roche 2013) and horizontally mismatched individuals are disadvantages in terms of wage, which in consequence is more evident among those in late careers (Bender and Heywood, 2011), pronounced on occupation-specific educations (Somers et al., 2019), and also have differences on gender (Nordin et al., 2010). Another study shows that mismatch is more apparent with age in more general fields than on occupation-specific fields and low incomes (Robst, 2007a). Another group of studies show that wages do not impact as suggested in the literature (Zhu, 2014; Béduwé and Giret, 2011). For example, Montt (2015) study shows that the costs derived from horizontal mismatch on income are high when combined with vertical mismatches.

Other scholars argue that horizontal mismatch causes lower job satisfaction and high turnover (Bender and Heywood, 2009; Béduwé and Giret, 2011). Béduwé and Giret (2011) study finds the consequences of horizontal mismatch in the case of France and shows that there are high rates of mismatch between workers who finished vocational training and also provide evidence

on vertical mismatch. However, this study found that the impact of horizontal mismatch is limited when considering job characteristics. In terms of field of study, studies show that horizontal mismatch is evident among graduates in arts, humanities, and social sciences (Verhaest et al., 2017; Robst, 2007a; Robert, 2014). In addition, scholars suggest that individuals who finished vocational training have a lower probability of facing horizontal mismatch (Levels et al., 2014). In contrast, another study shows that integrating more practices within the degree programs regardless of the field of study lowers the danger of mismatch that graduates may face.

The Context

Kosovo has the youngest population in Europe, with 50% under 25 years of age, which can be an engine of sustainable economic development (European Commission, 2018). Despite Kosovo's potential, the slow process of institutional reforms to ensure a favourable business environment has caused a low economic performance level leading to a high unemployment rate. According to estimates, the unemployment rate in Kosovo is very high (Table 1), which in 2019 was 25.7 per cent and in 2020 was 25.9 per cent. Among the most vulnerable groups are youth, where the unemployment rate is estimated to be 49.4 in 2019 and 49.1 in 2020. The working-age 15-64 is expected to increase rapidly over the next decade, among which working age are either not economically active or not active or do not search for employment (Government of Kosovo, 2020). The source of the high unemployment rate is structural weaknesses, skill gaps among unemployed youth, informal economy, limited skill development. This has led the workforce into low skilled/productivity jobs, which has endangered workers' rights and safety (European Commission, 2020). Thus, the fragmented labour force in Kosovo with limited opportunities and the lack of quality of jobs increases poverty, lowers labour productivity, and cultivates discontent among youth who enter the labour market every year (World Bank, 2019). Responding to the high unemployment rate in Kosovo, it is essential to promote job creation through increasing productive employment, improving well-being and reducing poverty (World Bank, 2019).

Table 1: Labor Market Indicators based on age, gender

Indicators	2018			2019			2020		
	Male	**Female**	**Total**	**Male**	**Female**	**Total**	**Male**	**Female**	**Total**
Labour force participation rate	63.3	18.4	40.9	59.7	21.1	40.5	56.0	20.8	38.3
Inactivity rate	36.7	81.6	59.1	40.3	78.9	59.5	44.0	79.2	61.7
Employment-to-population ratio (employment rate)	45.3	12.3	28.8	46.2	13.9	30.1	42.8	14.1	28.4

Unemployment rate	28.5	33.4	29.6	22.6	34.4	25.7	23.5	32.3	25.9
Youth unemployment rate (15-24 years)	51.5	64.7	55.4	44.1	60.3	49.4	45.2	57.2	49.1
NEET share of youth population (15-24 years)	30.2	30.0	30.1	31.4	34.2	32.7	34.0	33.2	33.6
Share of vulnerable in total employment	20.3	17.1	19.6	20.3	13.9	18.8	19.0	11.0	17.0

Source: Kosovo Agency of Statistics (KAS)

Study reports maintain that the skill gaps negatively reflect private sector development at the national level and discourage foreign direct investments (FDI). A skilled labour force is crucial to attracting FDI, which may influence the creation of links between domestic suppliers that may connect to the skilled workforce and meet foreign firms' demands and requirements (Bajrami and Krasniqi, 2019). Hence, skills are crucial to ensure a more advanced business environment, boost job creation, and increase well-being. Employees who have more skills can improve their productivity and others, resulting in several positive outcomes capital productivity, enhanced innovation, and adopting advanced technology (World Bank, 2019).

Studies indicate a significant mismatch between workforce qualifications and the labour market demands (The Friedrich-Ebert-Stiftung,2019). These challenges of structural problems in the labour force are skill gaps among the labour force in Kosovo. Study reports show that youth in Kosovo (54%) work in jobs unrelated to their educational background. This study also shows a high degree of skill mismatch workforce and demands in the labour market. Over-education is another challenge related to skill mismatch, where around 44% of actual job vacancies require a low level of formal education compared to the current level of education of youth in these jobs.

Furthermore, a significant workforce declared that current jobs do not match their educational background (The Friedrich-Ebert-Stiftung, 2019). The structural labour market challenges stemming from the rapid growth of the working-age population are not matched by sustained job creation, persistently low participation of women and generally precarious employment opportunities (fewer than half of the employees have permanent work contracts) (European Commission, 2020). Thus, skill developments are crucial, and matter, which is crucial in the case of Kosovo, due to the lack of skills among labour force, consisting on low literacy level, low level of use of cognitive and socio-emotional skills are primary factors that lead them into a disadvantage in the labour market and excluded them economically. These skills determine labour market outcomes and matter for the long term well-being of youth (World Bank, 2019).

These skills are crucial in ensuring a more favourable business environment, encouraging job creation and increasing well-being.

Several factors are the source of the high unemployment rate among youth and inactivity. First is related to job security, a consistent concern for employees in general and employed young people. The employees' rights, long working hours, and the problems derived from salaries are other challenges. The private sector is the most attractive and is the primary preference of young people. In this context, those who rank job security at the lowest level are less satisfied with education (The Friedrich-Ebert-Stiftung, 2019). The second factor is the low level of the education system in Kosovo. Kosovo has a high number of students, which is double the EU average; the primary study fields they study are law and economics, but, low quality of education brought a shortage of skills in areas such as IT and engineering (European Commission, 2020). The low performance of the Kosovo education system is also the source of high unemployment among university graduates, 24% (European Commission, 2020). Despite that these university graduates have higher chances of finding a job, they are employed in jobs that require lower skills (European Training Foundation- EFT (2020), resulting in a very low satisfaction with the quality of education in Kosovo and among youth (The Friedrich-Ebert-Stiftung, 2019).

Kosovo institutions introduced several strategies to tackle the challenge of skill mismatch (World Bank, 2019) to tackle these issues through coordination with various stakeholders (Government of Kosovo, 2019; 2020). These strategies address skill mismatch problems from the institutional level and acknowledge that the labour market is fragmented. These strategies suggest the importance of institutional reforms in education institutions and closer cooperation between institutions and private sector development. Regarding study reports, the challenge of skill mismatch is related to the education system, where the demands of the market economy with skill sets of the labour force are not to match.

Methodology

Data and sample

To estimate the determinants of the incidence of the job-education mismatch, the chapter uses the data from the labour force survey commissioned by the Millennium Challenge Corporation (MCC) conducted in 2017 with 8,533 households. The survey used multi-stage stratified cluster-randomised sampling to arrive at a representative sample for Kosovo. The research

design and dataset are comparable with other datasets aligned to the Eurostat approach (Krasniqi and Williams, 2020). The unit of analysis in the survey are all individuals aged 15 and over living in private households and in employment who did at least one hour of work for pay or profit during the week preceding the interview. The survey contains information on the self-reported job-education mismatch using the question "Is your current or most recent job closely related to your primary to study field". The respondents who declared no to this question are categorised as a job-education mismatch. Survey also provided information on gender social-demographic variables such as age as a proxy for experience, marital status. In addition to the data on sectors in which respondents work. MCC Labour survey results show that 63.5 per cent reported that their job is not related to the field of study, suggesting the high job-education mismatch in Kosovo.

Econometric model

To estimate the probability of an individual reporting the job-education mismatch, we use the probit model, where the dependent variable is the dichotomous taking value of 1 if someone is not working in his/her related study field, where 0 otherwise. While this dependent variable is expressed in two outcomes, the regression analyses are conducted through the probit model:

$$y = \begin{cases} 1, & with\ probability\ p \\ 0, & with\ probability\ 1-p \end{cases} \tag{1}$$

In this study, we can express this generalised expression as:

$$y = \begin{cases} 1, & Yes \\ 0, & No \end{cases} \tag{2}$$

From equation (2) we want to model p as a function of regressors x, and the probability mass function for the observed outcome, y, is $p^y(1-p)^{1-y}$, with $E(y) = p$ and $Var(y) = p(1-p)$.

Also, when we formed the regression model by parameterises p to depend on an index function $(x'_i\beta)$, where x is a Kx1 regressor vector and β is a vector of unknown parameters. This gives the standard binary outcome mode:

$$p_i = Pr(y_i = 1|x) = F(x'_i\beta) \tag{3}$$

Where $F(*)$ is a specified parametric function of $(x'_i\beta)$, usually a cumulative distribution function (c.d.f.) on $(-\infty, \infty)$ which ensures the bound $0 \le p \le 1$.

There is a difference between the observed binary outcome, y, and an underlying continuous unobservable (or latent variable, y*, that satisfies the single-index model:

$$y^* = x'\beta + u \tag{4}$$

And even though y* is unobserved, we can observe:

$$y = \begin{cases} 1, & if \; y^* > 0 \\ 0, & if \; y^* \le 0 \end{cases} \tag{5}$$

From the latent-variable models (4) and (5), we can find:

$$\begin{aligned} Pr(y = 1) &= Pr(x'\beta + u > 0) \\ &= Pr(-u < x'\beta) \\ &= F(x'\beta) \end{aligned} \tag{6}$$

From this $F(*)$ is the c.d.f of $-u$. This presents the probit model if u is standard normality distributed.

From equation (6) we can find the marginal effect of the probit model:

$$\frac{\partial p}{\partial x_i} = \emptyset(x'\beta)\beta_i \tag{7}$$

Where the $\emptyset(*)$ represents the standard normal density.

Furthermore, to measure the magnitude of each independed variable we used the average marginal effects, which in general brings the same results as the marginal effect at the means, but they differ in the philosophical and methodological aspect:

$$\frac{\partial p}{\partial x_i} = \frac{\sum F'(x'\beta)}{n}\beta_i \tag{8}$$

From equation (9) it is obvious that the marginal effect is estimated as the average of the individual marginal effects. To obtain the probit and marginal effect results we used the software STATA-16.

Variables

This analysis considers the binary dependent variable, which represents if a worker is doing a job related to his/her study field; the outcomes with 'Yes' or 'No' responses. Independent variables used in the regression analysis include the age of respondent (experience), marital status, and dummy variable denoting sector fo activities and regions.

Empirical results

This section reports the probit estimates measuring the probability of individuals reporting the job-education mismatch. Table 3 reports the results from probit model regression and associated marginal effects in the second column. We include the following independent variables in the model: sociodemographic variables such as gender, a variable of interest to measure if there is evidence for gender differences, age as a proxy for experience, marital status, and other regional and sectoral dummy variables.

The probit regression model passed the Wald test, indicating that all independent variables are jointly and statistically significant and different from zero. The correlation matrix reported in the Appendix concludes that multicollinearity is not a problem in our data, as correlation coefficients are generally low. All maximum likelihood models have passed the statistical test for joint statistical significance of explanatory variables (see Wooldridge 2015). The test statistics suggest a very good fit of our model (Goodness of fit models). Analysing the mean and standard deviation for the predicted probabilities, we can conclude that our models have high similarities to the actual mean and standard deviation of the dependent variable, again confirming the goodness of fit of our models. Measuring the per cent correctly predicted values represents statistically strong evidence for our models; more precisely, 76.6 %

Table 2. Regression results Probit model: Dependent variable 1= If respondent stated that his/her current or most recent job is not closely related to his/her primary to study field, the 0) otherwise

Variables	Probit model estimates	Marginal effects
Gender (1=Male, 0=Female)	-0.121**	-0.0346**
	(0.0437)	(0.013)
Respondent's age	-0.0177***	-0.00506***
	(0.0017)	(0.000)
Marital status (Ref. Category Single)		
Married or factual relationship	-0.0906	-0.0259
	(0.0483)	(0.014)
Widowed	0.149	0.0409
	(0.1578)	(0.042)

Divorced or legally separated	-0.101	-0.0291
	(0.2605)	(0.076)
Sector dummies (Ref. Category: Agriculture, forestry and fishing)		
Mining and quarrying	-1.033***	-0.347***
	(0.1613)	(0.059)
Manufacturing	-0.400***	-0.116***
	(0.0882)	(0.026)
Electricity, gas, steam and air conditioning supply	-1.180***	-0.402***
	(0.1084)	(0.037)
Water supply; sewerage, waste management and remediation activities	-0.873***	-0.286***
	(0.1672)	(0.061)
Construction	-0.0415	-0.0104
	(0.0828)	(0.021)
Wholesale and retail trade; repair of motor vehicles and motorcycles	-0.425***	-0.124***
	(0.0772)	(0.022)
Transportation and storage	0.0568	0.0137
	(0.1175)	(0.028)
Accommodation and food service activities	-0.174	-0.0463
	(0.0989)	(0.027)
Information and communication	-1.096***	-0.371***
	(0.1297)	(0.046)
Financial and insurance activities	-1.433***	-0.494***
	(0.1206)	(0.039)
Real estate activities	-1.008**	-0.337*
	(0.3832)	(0.145)
Professional, scientific and technical activities	-1.512***	-0.521***
	(0.1546)	(0.050)
Administrative and support service activities	-1.226***	-0.419***
	(0.1203)	(0.041)
Public administration and defence; compulsory social security	-0.568***	-0.173***
	(0.0844)	(0.026)
Education	-2.168***	-0.698***
	(0.0881)	(0.020)
Human health and social work activities	-1.926***	-0.643***
	(0.1013)	(0.025)
Arts, entertainment and recreation	-0.566***	-0.172***
	(0.1190)	(0.039)
Other service activities	-0.414***	-0.120***
	(0.0784)	(0.022)
Activities of households as employers; undifferentiated goods- and services-producing activities of households for own use	-0.199	-0.0535
	(0.1586)	(0.045)
Activities of extraterritorial organisations and bodies	-0.803***	-0.259***
	(0.2021)	(0.074)
Regional dummies (Ref Category: Ferizaj)		
Gjakova	-0.329***	-0.0934***
	(0.0644)	(0.018)
Gjilan	-0.217***	-0.0604***
	(0.0630)	(0.018)
Mitrovica	-0.0776	-0.0211
	(0.0622)	(0.017)
Peja	-0.119	-0.0325
	(0.0614)	(0.017)
Pristina	-0.414***	-0.119***
	(0.0580)	(0.017)
Prizren	-0.433***	-0.125***
	(0.0689)	(0.020)
Constant	2.088***	7176
	(0.1102)	

Observations	7176
Pseudo R^2	0.246
chi2	2373.5

Standard errors in parentheses
* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Turning to the discussion of results, we found statistically significant gender differences in reporting job-education mismatch. Keeping all other independent variables constants, on average, a male has a 3,46 percentage points lower probability than a female of reporting the job-education mismatch. This finding suggests that females are more likely to hold job positions that do not match their educational profiles despite the higher unemployment rate. Considering the previous evidence that employees who report job-education mismatch receive lower wages (Bender and Heywood, 2011), the finding may suggest that females face wage discrimination in the labour market. In addition to gender, the findings suggest that an individual's age decreases the likelihood of reporting a job-education mismatch. Older people have more experience and have made necessary adjustments to find a job more closely related to his or her educational background. Marital status was not statistically significant in explaining the incidence of the job-education match.

Results for the sector for economic activity dummies suggest that overall, the likelihood of reporting job-education mismatch is lower than in agriculture as a reference base category. Further, comparing the size of regression coefficients across sectors of economic activity, the study found that in sectors where is a need for more professional and highly skilled workers, the likelihood of reporting job-education mismatch is lower, such as Professional, scientific and technical activities Education Human health and social work activities. Finally, regional dummy variables suggest that individuals from Prishtina, Gjakova, Gjilan and Prizren, on average, have a higher probability of reporting less job-education mismatch compared ot the Ferizaj reference base.

Conclusions and policy implications

This chapter examined the determinants of the incidence of the job-education mismatch in the Kosovo labour market, using the Labour Market survey 2017 conducted by The Millennium Challenge Corporation. The study accounted for gender, experience, marital status and sectoral and regional differences. Using individual-level self–reported data on labour market status, this study offer insight into factors explaining job-education mismatch in Kosovo. Using probit

model regression findings suggest a gender gap in explaining the prevalence of the job-education mismatch. Men compared to women have 3.4 percentage points lower probability of reporting the job-education mismatch. Thus, it suggests that females compared to males are more likely to hold job positions that do not match their educational profiles despite the high unemployment rate—considering the previous evidence that employees who report job-education mismatch receive lower wages having a considerable effect on their well-being. In addition to age, the incidence of job-education mismatch decreases with experience (individual age). Other variables explaining the job-education mismatch are sectoral and regional dummies.

Findings are useful for policymakers and managers interested in supporting the alignment of the job positions and education. Policymakers should focus on substantial reforms of the education system to offer high-quality study programs at all levels of education) to enable a better match between jobs and education. The better job-education match helps companies reduce operational costs and improve firm performance and can help individuals prosper better in careers and receive adequate wages. In particular, the study recommends that educational institutions and other government institutions support females related programs because females are in a disadvantaged position in the labour market and avoid any form of deskilling in the labour market, thus supporting the private sector growth.

The study has some limitations. First, we cannot distinguish between vertical and horizontal mismatch. Second, we cannot differentiate causes of the skills mismatch, whether it was the result of overqualification or under qualifications. Thus, this study points out that future studies should consider the importance of other variables in investigating the job-education match. To do so, a more complex survey specifically designed to analyse job-education mismatch should be implemented.

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