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The Impact of the Digital Divide on Wage Gaps among Individuals in Pakistan

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Abstract

The revolution in information and communications technology (ICT) has brought about a significant improvement in connectivity all over the world and has permeated most facets of contemporary human life. The digital revolution is already underway and will be the fourth major shift in the industrial sector. Despite the fact that Pakistan has achieved considerable strides in the field of information technology over the past several years, the country still ranks 135th out of 144 in terms of its access to the internet. This low level of usage of information and communications technology is a potential source of the wage gap between individuals. In order to achieve this goal, this study conducts research on the impact of the digital divide on the wage gap that exists among individuals in Pakistan. The use of information and communications technology is a synthesis of several digital abilities. For the purpose of empirical analysis, data obtained from the PSLM – HIES survey (2018-2019) was utilized. The quantile regression model serves as the foundation for the empirical results. According to the estimations provided by the quantile regression, the difference in individual wages may be well explained by factors like ICT usage capacities and socioeconomic, demographic, and regional factors. The findings of the study suggest that individuals who know the use of all digital skills earn more than those who do not know the use of any skill. The highest differences in earnings are observed at the upper quantile (90th percentile) of the digitally skilled individual versus the unskilled or low-skilled. The differences in wages were observed across the level of education, occupation, area, province, age, and disability of individuals. The study's findings are related to target 10.4 of the SDGs to ensure equal opportunity and reduce inequality in outcomes. The study proposes some policy measures to bridge the wage gap through ICT penetration.

Keywords: Wage gap, Digital Divide, Digital Inequalities, Quantile Regression

1. Introduction

Digitalization is quite possibly the most broadly perceived subject across all overall population segments. This concept's technologies are already advanced and will continue to improve as time goes on. Hence, as of late, there is a growing spotlight on the impact of new technologies on the work market and, in this manner, on people's lives. There are tremendous changes in all enterprises that recommend changes in occupation structure, utilization, and production patterns. Digitalization brings about significant changes in socioeconomic interaction. The new technologies will alter the approach to conveying business, working, and living (Antonio & Tuffley, 2014). Along these lines, it influences all individuals: authorities/government, companies, and residents/people.

The fourth industrial revolution presents a new socioeconomic scenario that requires institutions to focus on sustainable and inclusive growth as outlined in the 2030 Agenda (UN General Assembly 2015). Digitization can help marginalised groups and promote gender equality. However, it is crucial to anticipate negative effects on women, particularly stereotypes. Follow Pillars II and III of the Digital Single Market Strategy to avoid a digital divide. These pillars promote the development of digital networks and innovative services and ensure that all citizens can benefit from an inclusive digital society. The European Parliament's resolution on gender equality and women's empowerment in the digital age helps women and all citizens gain the skills to take advantage of internet opportunities (European Parliament, 2016).

For public authorities, there are changes in how they speak with occupants and use computerised technologies as a component of modernization techniques to uncover value. They require having as a genuine benefit the appropriate tools for truly managing work market changes (Acilar, 2011). It is also uncommon for government employees to have the devices and aptitude to incorporate computerised technologies for adding value to the services offered. For companies, the key component is addressed by developing the ability to react as quickly as possible to their clients' needs (Mariscal, 2019). Digitalization gave them another battleground for competitive advantage—speed comes first. Additionally, it will affect the organisational charts, and HR must be skilled. People are challenged by digitalization. Adaptability became critical as high skills and appropriate capabilities were required for expanded adaptability to changing conditions. If mismanaged by authorities and people, it can fuel weak gatherings and create more significant polarization, group isolation, and so on.

As of late, the Organization for Economic Cooperation and Development (OECD) has drawn attention to the phenomenon of the digital divide, which is defined as the gap between individuals, households, associations, and geographic areas at various socioeconomic levels in terms of both their chances to access information and communication technologies (ICT) and their use of the Internet for a wide range of activities (Audi et al., 2021; Audi et al., 2022). A comparative report included the principal categories of factors that can determine the digital

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divide: a) access to the infrastructure (correspondence foundations, PC accessibility, and Internet access); b) the standard of living (pay); and the level of schooling; c) different factors like age, gender, racial and linguistic foundations, and area of the households.

The gender digital divide is quite possibly the main inequality intensified by the digital revolution. ICTs have turned into an irreplaceable tool in society. The quantity of individuals going on the web to direct ordinary exercises, like business and banking, instruction, looking for work, municipal commitment, and framing and keeping up with social connections, is expanding each day. For many of us, being digitally connected is a necessary part of our everyday lives, and it is hard to imagine working without Internet access. The segregation of the two genders prevents us from arriving at comprehensive success and equality, and this is particularly valid for the gender digital divide. As per UN Women, The web user gap between the genders has expanded in 2016. The fact that numerous women are denied access to ICTs means that they are also denied the potential for change and accomplishment that these technologies carry with them. For sure, it is significant for females, particularly those in developing countries, to have access to ICTs, which will add to the acquiring agency on a worldwide level. Furthermore, ICTs can be of incredible worth to females, particularly in separate circumstances where it could be hard to make a significant change.

The digital gap affects many economic, social, and personal areas, including social, financial, labour market (Shair & Majeed, 2020; Mohd et al., 2021), and government relations (Kassem et al., 2019; Robinson et al., 2022). Digital divide studies focus on internet difficulties given that terminology is diverse (Scheerder et al., 2017; Shair et al., 2021). In the gender-based digital divide, gender must be considered in conjunction with belonging to a certain social group with associated hazards. Thus, half the population—women—are in this condition. The digital divide is sometimes associated with low educational levels (Hargittai 2010; Varela-Candamio et al. 2014; Haider & Ali, 2015; Roussel et al., 2021) and rural locations (Caridad-Sebastian & Ayuso-García 2011; Novo-Corti & Baña-Castro 2011; Whitacre & Mills 2010). This emphasises the city's technological growth (Nieto-Mengotti et al. 2019). The digital divide has been linked to labour market access, notably for young individuals (Picatoste et al. 2018). Considering their enrolment, the digital divide is linked to preconceptions about women's limited interest in technical employment (Sajid & Ali, 2018; Palomares-Ruiz et al. 2020). Berrio et al. (2017) call these sentiments "technological deprivation," and countries follow these behaviours into adolescence.

The study of the literature contains many of the factors that were not taken into consideration in the study of wage inequality in Pakistan. Previous research (Jim Allen, 2002; Huyer, 2003; Angela Tattersall, 2007; Chaudhary, 2009; Hilbert, 2011; Antonio Tuffley, 2014; Shaukat, 2014; Sorgner, 2019; Shair et al. 2022) to the best of our knowledge. Previous studies looked into the factors (socioeconomic, regional, and demographic) that influence the gender wage gap in Pakistan. However, these past studies used different and limited variables while ignoring the most important variable, which is the digital divide. The digital divide based on the usage capabilities of the specified skills was not previously estimated in the literature using a nationally representative data set. The current study is an endeavour to fill the gap by fusing significant variables like the digital divide and occupation.

The main purpose of this study is to investigate the impact of the digital divide on the wage gap in Pakistan. The prevalence of the wage gap is a global trend. This difference is not only in terms of opportunities and resources, but also in terms of rewards, and across regions, classes, experience, and age. There are also gender disparities in education, income, unemployment, and occupation. Women face somewhat obvious and subtle gender discrimination at all stages of their careers. The purpose of the present study is to explore the current situation regarding wage discrimination in the presence of the digital divide and other socioeconomic and regional factors in Pakistan. The findings of the study will be helpful for policymakers in reducing the wage gap due to the digital divide and increasing economic potential and per capita GDP. The importance of the digital divide and wage gap emerges from the Sustainable Development Goals (SDGs), which are designed to achieve economic prosperity and transmit the developmental impact on each and every segment of society. Therefore, equality in wages and equal access to technology are also targets of the SDGs.

2. Data and Methodology

2.1. Econometric Methodology

The model required to quantify the effects of socio-economic and demographic covariates on the wage gap is quantile regression. Through quantile regression, a more complete picture can be obtained by identifying a few regression curves that correspond to distinct percentage points of each distribution (Cade and Noon, 2003; Coad and Rao, 2007; Pham and Reilly, 2007). QR has an additional advantage over OLS in that it makes it possible to obtain the whole dependent dispersion of the dependent variable, as opposed to focusing on means as is the case with OLS (Fattouh, 2001), and is seen as a standard analytical tool in income and wage studies (Yu, 2015). The QR was first developed by Koenker and Bassett (1978), and keeping in view the setting of the Mincer (1974) wage equation, it can be formed as follows (see Martins & Pereira, 2004):

$$lnw_i = X\Gamma_\theta + u_{\theta i}\ with\ Quan_\theta(lnw_i|X) = X\Gamma_\theta$$

Where X and Γ_θ denote the exogenous variable and coefficient vectors, respectively, and θth is the conditional quantile of lnw given X.

2.2. Data

This study used data from the Pakistan Social and Living Standard Measurement (PSLM) Survey 2019–20. The data is available on the website of the Pakistan Bureau of Statistics (PBS). It encompasses 115,632 individuals' observations and includes detailed information on education, employment, occupation, family background, income, ICT, and other socio-economic, regional, and demographic factors. Table 1 contains the definitions of the variables used in the analysis.

Table 1. Definition of the variables

List of variables	Description
Dependent variable	
Ln Wage	The logarithm of the monthly wage earned from major employment
Independent variables:	
ICT	=1 if knows the all skills: email, word, web; 0 otherwise
Age	Age of the individual in years
Gender	=1 if the individual is female, 0 otherwise
Marital status	=1 for married, 0 otherwise
Education	Education of the individual divided into 5 categories: No education, Primary, middle, secondary, and higher
Area	=1 if the individual is from an urban area, 0 otherwise
Province	Provinces of the individual are divided into 4 categories: KPK, Punjab, Sindh, and Balochistan.
Occupation	Occupation of the individual is divided into 6 categories: 1. Employer1 (employed 10 or above employees) 2. Employer2 (employed 1-9 employees) 3. Self-employed 4. Family contributing worker 5. Wage-employed 6. Farming
Disability	=1 if difficulty in seeing, hearing, understanding, walking, remembering, and communicating, 0 otherwise
Native	=1 if native (born in this district), 0 otherwise

3. Results and Discussion

3.1. Descriptive Analysis

In the analysis, most of the variables are dichotomous, and their mean value represents the proportional share of a category in the total. For instance, almost 90 percent of the individuals are male, 40 percent are illiterate, and almost 10 percent reported higher education (see table 2). In the sample, almost 32 percent of the individuals belong to an urban area, only 7 percent are migrants, and 12 percent reported any kind of disability. The indicator of digitalization reported the poor penetration of digitalization among individuals. In the sample, 50 individuals per 1,000 reported the use of email, 25 individuals per 1,000 reported the use of word processing, and 31 individuals per 1,000 reported the use of web browsing. However, 50 out of every 1000 people reported knowing how to use any of the skills, while only 17 out of every 1000 people reported knowing how to use all of the specified skills.

Table 2. Descriptive analysis of variables

Variable	Mean (%)	Variable	Mean (%)	Variable	Mean (%)
Wage	31,675	Secondary Education	23.18	Native	93.18
Age	37.0689	Higher Education	9.86	Disabilities	12.01
Male	90.91	KPK	17.29	Email	4.95
Married	76.94	Punjab	51.73	Word	2.48
No education	39.11	Sindh	21.66	Web	3.16
Primary Education	14.34	Balochistan	9.33	ICT(any skill)	5.39
Middle Education	13.51	Urban	32.10	ICT(all skills)	1.74

The differences in wages observed over the distribution of age. A higher level of wages is observed for the individual age cohort of 50 to 60, whereas above 60, a lower level of wages is observed (see figure 1). The higher wage level observed among married people compared to unmarried people. The wages of a married person are 1.7 times higher than those of an unmarried person. The wage of the male is almost two times higher than the

wage of the female. It implies a wage gap due to differences in gender. It is interesting to note that migrants are earning more than natives. The migrant's wage is 15% less than that of the natives. A higher level of wages is observed among the individuals of a relatively advanced province named "Punjab." The distinction between urban and rural areas also contributes to wage disparities; an urban resident earns 50% more than a rural resident.

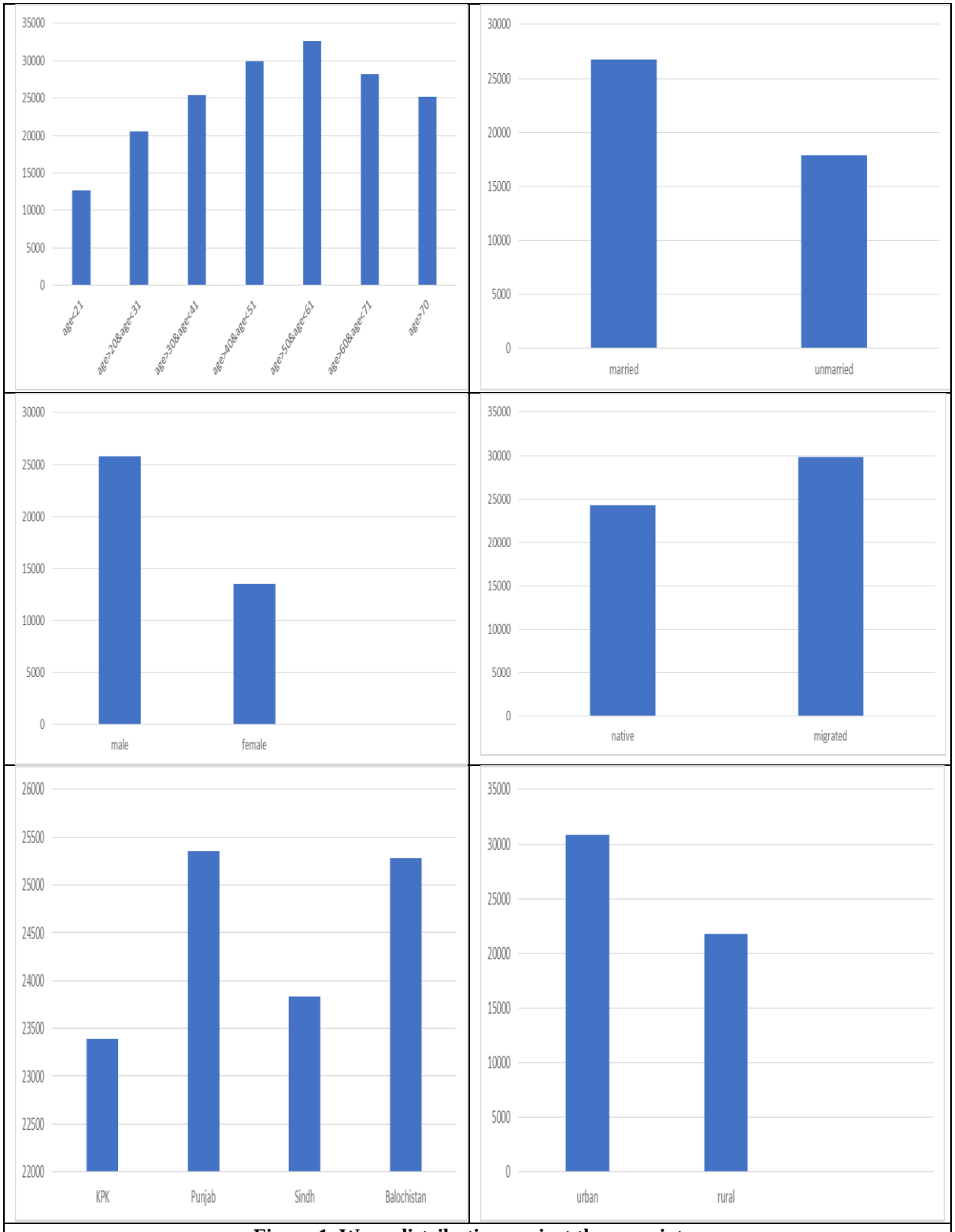

Figure 1. Wage distribution against the covariates

The difference in wages is observed across different levels of education. A higher level of education is associated with higher wages. The wage of the individual with higher education is three times more than the wage of the illiterate (see figure 2). The choice of different kinds of occupations is also a potential source of wage differentials. For instance, an individual with more than 10 employees earns 2.5 times as much as a self-employed individual.

A family-contributing worker is more vulnerable than other occupations. It is also observed that the digital divide is a potential source of differences in wages. An individual with digital literacy earns 2.5 times more than an individual without digital literacy. Individuals with all ICT skills earn more than those with some or none.

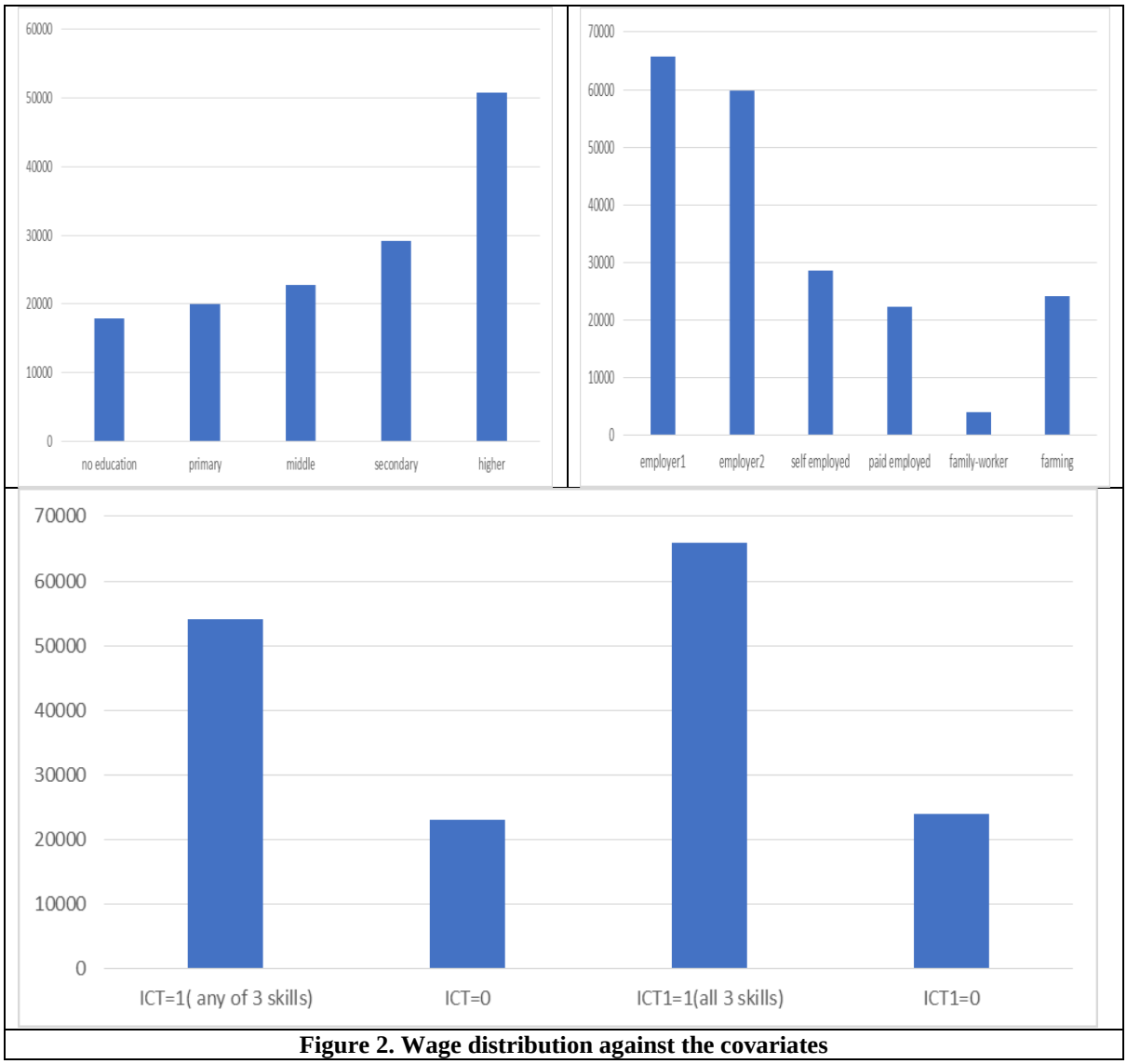

Figure 2. Wage distribution against the covariates

3.2. Regression Analysis

The present study is an attempt to estimate the effect of the digital divide on the wages of individuals in Pakistan using socio-economic, demographic, and regional covariates. The dependent variable is the log of wages, so we applied the log to get the estimate interpreted as a percentage. We run the quantile regression at the 10^{th}, 25^{th}, 50^{th}, 75^{th}, and 90^{th} quantiles. The estimates of the quantile regression are presented in table 3. The estimates of the quantile regression suggest that the variable of interest, the digital divide, has a significant effect on the wage across the distribution. The estimated difference in the wages of the individuals across the wage distribution was observed in the range of 30 percent to 44 percent. The lower difference is observed in the wage at the 10^{th} and 25^{th} quantiles. Wage disparities are nearly 43 percent at the upper quantile (the 90th percentile). The wages of the individual who knows all the skills at the 90th quantile are 43 percent higher than the individuals who do not know all the skills at that level. The higher income of the digitally skilled person is due to the higher demand for skilled workers in the arena of the fourth industrial revolution (Masanet et al., 2021; Senturk & Ali, 2021). Moreover, an individual with digital literacy can earn more by freelancing (Mohd, 2021).

The wage of the native is lower than that of the migrant, as depicted by the estimates of the quantile regression. The difference in the wages of native and migrant workers is in the range of 1.9 to 4.3 percent, while the differences are observed at the upper quantile. The wage of the disabled person is lower than that of the non-disabled person; the estimated differences are in the range of 4.3 to 15.4 percent. The higher differences are observed in the wages of the individuals in the lower quantile. In analysis, the coefficient of the quantile regression

suggests that a higher individual's age is associated with a higher individual's wage. The effect is consistent across each quantile. The higher effect of rising age is observed at the upper quantiles, i.e., the 75th and 90th.

The demographic variable gender of the individual depicts the differences in the wages of individuals. The estimated wage disparities between genders range from 47.5 to 141 percent. The higher difference in the wages of individuals is observed at the lower quantile than the upper quantile. It depicts the differences in wages due to gender disparity. Individuals from the developed province of Punjab earn more than those from the other province, according to the quantile regression estimates for the regional variable province. In the analysis, we consider the "Punjab" as a base category. The estimated coefficient for each province is negative, which indicates that individuals in KPK, Sindh, and Balochistan are earning less than individuals in Punjab.

Table 3: Estimates of individuals' wages by quantile regression

	(10%)	(25%)	(50%)	(75%)	(90%)
VARIABLES	Model 1	Model 2	Model 3	Model 4	Model 5
ICT	0.341***	0.309***	0.320***	0.351***	0.436***
	(0.0193)	(0.0163)	(0.0131)	(0.0156)	(0.0183)
Native	-0.0196*	-0.0233***	-0.0275***	-0.0417***	-0.0461***
	(0.0119)	(0.00722)	(0.00606)	(0.00689)	(0.00845)
Disability	-0.154***	-0.118***	-0.0837***	-0.0639***	-0.0435***
	(0.00947)	(0.00736)	(0.00544)	(0.00622)	(0.00729)
Age	0.00552***	0.00739***	0.00938***	0.0123***	0.0147***
	(0.000279)	(0.000188)	(0.000146)	(0.000164)	(0.000217)
Male	1.410***	1.194***	0.923***	0.635***	0.475***
	(0.0159)	(0.0109)	(0.00917)	(0.00850)	(0.00984)
Married	0.387***	0.275***	0.200***	0.155***	0.120***
	(0.00920)	(0.00545)	(0.00392)	(0.00438)	(0.00575)
KPK	-0.139***	-0.115***	-0.0976***	-0.0970***	-0.0953***
	(0.0126)	(0.00778)	(0.00556)	(0.00637)	(0.00813)
Balochistan	-0.0667***	-0.0818***	-0.0852***	-0.0874***	-0.0839***
	(0.0107)	(0.00672)	(0.00492)	(0.00576)	(0.00716)
Sindh	-0.211***	-0.200***	-0.171***	-0.166***	-0.156***
	(0.0118)	(0.00743)	(0.00564)	(0.00642)	(0.00798)
Urban	0.199***	0.177***	0.155***	0.138***	0.112***
	(0.00649)	(0.00413)	(0.00317)	(0.00370)	(0.00469)
Primary	0.0494***	0.0800***	0.0897***	0.0987***	0.0981***
	(0.00944)	(0.00548)	(0.00439)	(0.00476)	(0.00658)
Middle	0.204***	0.204***	0.200***	0.202***	0.207***
	(0.00920)	(0.00567)	(0.00401)	(0.00451)	(0.00649)
Secondary	0.348***	0.342***	0.370***	0.426***	0.458***
	(0.00730)	(0.00493)	(0.00376)	(0.00463)	(0.00544)
Higher	0.685***	0.794***	0.895***	1.006***	1.065***
	(0.0127)	(0.00842)	(0.00629)	(0.00716)	(0.00785)
Employer1	1.085***	0.859***	0.713***	0.625***	0.555***
	(0.0287)	(0.0178)	(0.0175)	(0.0182)	(0.0228)
Employer2	0.994***	0.647***	0.360***	0.212***	0.224***
	(0.0269)	(0.0167)	(0.0238)	(0.0241)	(0.0383)
Self-employed	0.809***	0.527***	0.288***	0.129***	-0.0188**
	(0.0114)	(0.00787)	(0.00612)	(0.00657)	(0.00918)
Paid employed	0.688***	0.397***	0.120***	-0.0835***	-0.306***
	(0.0106)	(0.00739)	(0.00562)	(0.00598)	(0.00814)
Family worker	-1.003***	-1.200***	-1.304***	-1.295***	-1.249***
	(0.0126)	(0.0321)	(0.0416)	(0.0368)	(0.0529)
Constant	6.437***	7.309***	8.138***	8.848***	9.430***
	(0.0257)	(0.0167)	(0.0134)	(0.0139)	(0.0174)
Observations	199,331	199,331	199,331	199,331	199,331

Signification (*** p<0.01, ** p<0.05, * p<0.1)

The urban-rural difference is also a potential source of differences in wages between individuals. The coefficient of the urban area suggests that the wage difference among individuals in the urban-rural area is in the range of 11.2 to 19.9 percent. The higher level of differences observed at the lower quantile while being relatively lower at the upper quantile. In the analysis, the coefficients of the educational categories suggest that the wages of individuals with primary, middle, secondary, and higher education are higher than those of individuals with no

education. Here in the analysis, education is not the base category. All the coefficients of education are positive at each quantile, which indicates that an individual with any level of education is earning more than an individual with no education. It is worth noting that a person with a primary education earns more than one without one. While a person with a middle education earns more than a person with primary education, and a person with a secondary education earns more than a person with a middle education. Finally, a person with a higher education earns more than a person with a secondary education. The pattern of symmetry is observed across each quantile. Furthermore, wage disparities due to educational differences are greater at the upper than lower quantiles.

The coefficient of the occupational category variable suggests that there is a difference in wages observed across the occupation categories. In the analysis, farming is the base category. According to the employer1 coefficient, an individual running a business with 10 or more employees earns 108 percent more than an individual working in farming in the tenth lowest quantile. In the upper quantile, wage disparities between employers1 and farmers are close to 55%. The coefficient of employer2 is positive across the quantile, and it indicates that the wage of employer2 is higher than the wage of the individual working in farming. It is worth noting that wage of the self-employed and paid employed is higher than the person working in farming at the lower and middle quantile. While the earning of the self-employed and paid-employed individual is lower than the wage of the person working in farming at the upper quantile 75^{th} and 90^{th}. In the analysis, the coefficient of the variable family contributing worker suggests the earnings of the family contributing worker are less than the earnings of the person working in farming. It implies that among the different occupations, the family-contributing worker is more vulnerable than the other occupational categories.

4. Conclusion

The current study focuses on the effect of the digital divide on the wage gap for individuals in Pakistan. The digital divide quantifies on the basis of an individual's know-how related to basic skills like email, word processing, and web browsing. For this purpose, we consider the data from the nationally representative survey PSLM-HIES (2018-19). The study was related to Target 9C of the SDG, which is related to equal access to technology for all segments of society and regions. The outcome of the study is also related to target 10.4 of the SDGs, which is to ensure equal opportunity and reduce inequality in outcomes. The study confirmed the significant disparities in wages between individuals due to socio-economic, regional, and demographic factors.

The variable of interest in the digital divide predicts greater disparities in the wages of individuals. It implies that an individual who is proficient in all skills earns more than an individual who is not proficient in any skill. The highest differences in earnings are observed at the upper quantile (90th) of the digitally skilled individual versus the unskilled or low-skilled. According to the separate regression for females, a female with digital literacy skills earned more than a female with no or low skills. In a nutshell, the digital divide is a potential source of differences in wages among individuals.

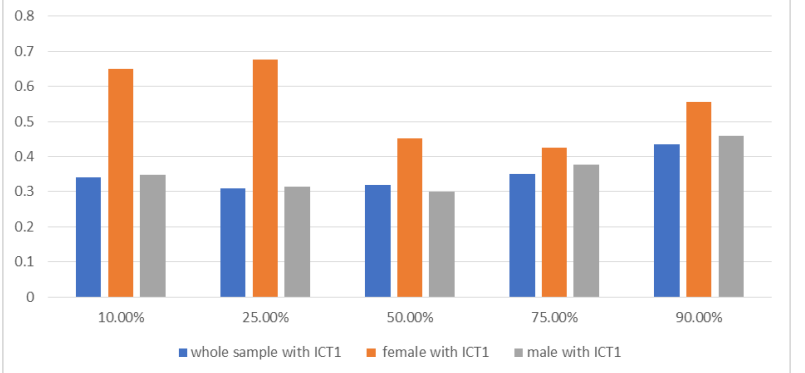

Figure 3. Effect of digital divide on wage at different quantile

Individual wage disparities are exacerbated by socioeconomic factors such as education and occupation. The higher level of education raised the individual's wage and left behind the individual with low or no education. Moreover, the individual with a business who employs some employees or is self-employed earns a higher wage than those in other occupations. The regional factors like area and province also show a greater disparity among the wages of the individuals. Individuals from urban areas earned more than those from rural areas, and those from developed provinces earned more than those from less developed provinces. The demographic factors like age, gender, disability, and migration status show the greater disparity in the wages of the individuals. A higher level of education is associated with higher wages. Male earnings are higher than female earnings, and disabled people earn less than non-disabled people. Moreover, the wages of the natives are less than those of the migrants. For the purpose of lowering the wage disparity, it is required to enrich individuals with digital skills. The steps for digital inclusion must be taken with the goal of providing equal access to digital literacy for all. Furthermore,

it is necessary to increase individuals' purchasing power in order to afford the focal technology because access to it can accelerate digital inclusion. Moreover, subsidising the provision of focal technology can also help in the diffusion of digital inclusion. Better infrastructure may result in higher ICT skill adoption. For this purpose, relevant stakeholders must generate investment in internet access infrastructure. The gender differences are also a potential source of the wage gap. Therefore, it is required to empower women digitally, economically, and financially. The urban-rural difference is also a source of differences in wages. Therefore, it is required to bridge this gap by focusing on rural development programs. It has been observed that disabled people earn relatively less, which is a potential source of wage disparity. As a result, it is necessary to implement social safety net programmes to compensate for the loss of earnings due to disability and to increase the earnings of the disabled person.

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Appendix

Table A1. Estimates of the quantile regression (Female)

VARIABLES	(10%) Model 1	(25%) Model 2	(50%) Model 3	(75%) Model 4	(90%) Model 5
Native	-0.0350***	-0.0294***	-0.0341***	-0.0552***	-0.0563***
	(0.0105)	(0.00736)	(0.00604)	(0.00660)	(0.00749)
Disability	-0.153***	-0.116***	-0.0792***	-0.0620***	-0.0386***
	(0.00804)	(0.00699)	(0.00527)	(0.00597)	(0.00729)
Age	0.00438***	0.00633***	0.00845***	0.0117***	0.0140***
	(0.000270)	(0.000193)	(0.000146)	(0.000168)	(0.000222)
Married	0.423***	0.305***	0.221***	0.173***	0.144***
	(0.00980)	(0.00570)	(0.00386)	(0.00434)	(0.00624)
KPK	-0.152***	-0.126***	-0.100***	-0.101***	-0.0902***
	(0.0125)	(0.00724)	(0.00549)	(0.00623)	(0.00841)
Balochistan	-0.0646***	-0.0766***	-0.0717***	-0.0713***	-0.0629***
	(0.0108)	(0.00639)	(0.00479)	(0.00551)	(0.00750)
Sindh	-0.204***	-0.193***	-0.159***	-0.156***	-0.140***
	(0.0118)	(0.00711)	(0.00556)	(0.00617)	(0.00840)
Urban	0.191***	0.171***	0.151***	0.132***	0.106***
	(0.00610)	(0.00423)	(0.00313)	(0.00360)	(0.00483)
Primary	0.0521***	0.0766***	0.0810***	0.0855***	0.0841***
	(0.00892)	(0.00573)	(0.00432)	(0.00457)	(0.00688)
Middle	0.187***	0.195***	0.186***	0.183***	0.183***
	(0.00839)	(0.00567)	(0.00406)	(0.00459)	(0.00628)
Secondary	0.327***	0.329***	0.355***	0.398***	0.431***
	(0.00697)	(0.00494)	(0.00376)	(0.00449)	(0.00567)
Higher	0.593***	0.730***	0.837***	0.895***	0.972***
	(0.0122)	(0.00889)	(0.00604)	(0.00738)	(0.00951)
Employer1	1.087***	0.846***	0.694***	0.609***	0.538***
	(0.0282)	(0.0174)	(0.0152)	(0.0209)	(0.0244)
Employer2	0.995***	0.624***	0.328***	0.174***	0.228***
	(0.0191)	(0.0171)	(0.0220)	(0.0273)	(0.0602)
Self-employed	0.824***	0.517***	0.272***	0.109***	-0.0395***
	(0.0114)	(0.00832)	(0.00620)	(0.00659)	(0.00940)
Paid employed	0.684***	0.370***	0.0894***	-0.119***	-0.343***
	(0.0109)	(0.00787)	(0.00575)	(0.00602)	(0.00856)
Family worker	-1.003***	-1.222***	-1.192***	-0.991***	-0.887***
	(0.0657)	(0.0705)	(0.0653)	(0.0539)	(0.0680)
ICT	0.348***	0.315***	0.299***	0.376***	0.460***
	(0.0231)	(0.0143)	(0.0133)	(0.0166)	(0.0142)
Constant	7.889***	8.552***	9.112***	9.541***	9.953***
	(0.0211)	(0.0139)	(0.0105)	(0.0114)	(0.0152)
Observations	181,225	181,225	181,225	181,225	181,225

Significance *** p<0.01, ** p<0.05, * p<0.1

Table A2. Estimates of the quantile regression (Female)

VARIABLES	(10%) Model 1	(25%) Model 2	(50%) Model 3	(75%) Model 4	(90%) Model 5
Native	-0.0305	-0.0300	-0.0176	-0.0307	-0.0641**
	(0.0405)	(0.0307)	(0.0237)	(0.0249)	(0.0298)
Disability	-0.211***	-0.202***	-0.165***	-0.0854***	-0.00488
	(0.0469)	(0.0294)	(0.0303)	(0.0265)	(0.0334)
Age	0.0213***	0.0207***	0.0214***	0.0200***	0.0194***
	(0.00144)	(0.000899)	(0.000787)	(0.000716)	(0.000768)
Married	0.141***	0.128***	0.0574***	-0.0317*	-0.0459**
	(0.0318)	(0.0216)	(0.0195)	(0.0168)	(0.0190)
KPK	-0.0192	0.133**	0.103*	-0.0436	-0.0686
	(0.0733)	(0.0636)	(0.0553)	(0.0528)	(0.0662)
Balochistan	-0.446***	-0.250***	-0.225***	-0.281***	-0.315***
	(0.0617)	(0.0553)	(0.0527)	(0.0494)	(0.0599)
Sindh	-0.512***	-0.353***	-0.327***	-0.312***	-0.328***
	(0.0637)	(0.0590)	(0.0556)	(0.0524)	(0.0627)
Urban	0.277***	0.272***	0.181***	0.159***	0.162***
	(0.0343)	(0.0232)	(0.0200)	(0.0170)	(0.0213)
Primary	-0.0213	-0.0338	0.0799**	0.137***	0.132***
	(0.0468)	(0.0449)	(0.0327)	(0.0311)	(0.0375)
Middle	0.364***	0.280***	0.347***	0.352***	0.375***
	(0.0839)	(0.0494)	(0.0400)	(0.0398)	(0.0565)
Secondary	0.833***	0.607***	0.744***	0.816***	0.808***
	(0.0412)	(0.0286)	(0.0336)	(0.0279)	(0.0292)
Higher	1.494***	1.321***	1.485***	1.436***	1.346***
	(0.0428)	(0.0325)	(0.0261)	(0.0191)	(0.0261)
Employer1	1.284***	1.077***	0.957***	0.570***	0.438***
	(0.0707)	(0.319)	(0.107)	(0.0978)	(0.0366)
Employer2	0.929***	1.226***	0.841***	0.621***	0.344***
	(0.187)	(0.0719)	(0.0709)	(0.0391)	(0.0604)
Self-employed	0.483***	0.378***	0.292***	0.140***	0.112***
	(0.0527)	(0.0326)	(0.0300)	(0.0318)	(0.0430)
Paid employed	0.556***	0.548***	0.479***	0.231***	0.0871***
	(0.0446)	(0.0267)	(0.0242)	(0.0229)	(0.0270)
Family worker	-0.874***	-0.958***	-1.026***	-1.107***	-1.211***
	(0.0585)	(0.0870)	(0.0546)	(0.0515)	(0.0378)
ICT	0.651***	0.677***	0.452***	0.426***	0.556***
	(0.0772)	(0.0397)	(0.0394)	(0.0687)	(0.0593)
Constant	6.306***	6.881***	7.548***	8.441***	9.081***
	(0.0966)	(0.0746)	(0.0680)	(0.0645)	(0.0769)
Observations	18,106	18,106	18,106	18,106	18,106

Significance *** p<0.01, ** p<0.05, * p<0.1