



Skill-biased Impact of Trade Liberalization on Employment in the manufacturing sector of Pakistan



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Abstract *This study explores the association between trade liberalization and skilled employment from 1990 to 2005. Our estimation approach analyzes how skilled employment is affected by the protection rate. Trade liberalization and skilled employment are associated. Liberalization has increased skilled employment in the manufacturing sector of Pakistan. The findings also indicated a significant link between skilled labor and lagged policy. The results are also robust after including the different trade-related variables. The policy insinuation is that the government should provide free education programs and technical packages in their economies to gain from the benefits of trade liberalization.*

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Introduction

Many least-developed economies during the 80s drastically reduced tariffs as well as non-tariff barriers, which open their economies to competition. While openness was welcomed as it was deliberated as a significant contributor to economic growth, most of these economies were concerned about the view that openness might participate to enhancing the gap among the low and high-income groups, therefore, growing inequality (Wu et al., 2019). This liberalization has affected the labor market of all economies in intermediated-input and final goods sectors and directed toward skilled employment (Chen et al., 2017). The

question of how trade openness affects skilled employment, especially in developing economies, has once again become the research concern in the literature of international trade. Trade liberalization's impact on skilled employment is ambiguous in existing studies (Agbahoungba, 2019; Goldberg & Pavcnik, 2005).

Concerning the arguments that lowering tariffs and transportation costs should push all nations to concentrate on the production of those commodities in which they have a comparative advantage, in developing countries, unskilled labor is the abundant factor while skilled labor is

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the abundant factor for the developed countries. In developing economies, trade liberalization, therefore, is linked with a rise in the relative demand for less-skilled labor. However, the empirical indication does not guide this expected consequence. The fundamental clarification utilized is the skilled biased technology change consolidated in openness to trade which favors the wage of more skilled laborers in the south and North nations ([Aldaba, 2013](#); [Berman & Machin, 2000](#); [Bustos, 2011](#); [Chen et al., 2017](#); [Verhoogen, 2008](#)). For industries to intensify competition, they should adopt skilled biased technology. Lowering machinery prices and the use of technology offer an incentive for the industry to produce quality products and adopt new skill-intensive production technology which leads to a rise in the demand for skilled workers ([Wood, 1997](#)). In this way, industries can expand their participation in the world market to upgrade the quality of their products by hiring skilled labor ([Amiti & Konings, 2007](#); [Goldberg et al., 2010](#); [Topalova & Khandelwal, 2011](#)).

Theoretical mechanisms that persuaded our empirical study are the succeeding: trade liberalization lowers the cost to access higher quality imported inputs, permitting industries to become efficient by lowering the marginal cost and enhancing profitability. In the existence of fixed cost of goods innovation, reducing tariffs allows industries to upgrade the inputs product quality to yield the new high-quality product. The innovation of new products requires both the inputs of high quality and skilled labor. Thus, industries importing the inputs of the product and trading new higher quality products also enhance their employment of skilled workers ([Bas & Paunov, 2018](#)).

Our study finds a negative association between protection rates and skilled employment. The negative relationship is robust with the incorporation of sectoral

trade-related controls variable. The 1% import tariffs reduction lead to an increase in skilled labor by 0.4% overall (i.e., 0.004) and 0.6% (i.e., 0.006) in the manufacturing sectors of Pakistan. Our results are robust and statistically significant to lagged trade policy. The study findings are also robust in case of robustness checks of lagged trade policy. Our findings are consistent with those of [Fedderke et al. \(2000\)](#); [Edwards \(2003\)](#); [Bustos \(2005\)](#); [Meschi et al. \(2008\)](#); [Raju et al. \(2016\)](#) and in contrast with those of [Mrabet \(2012\)](#); [Brühlhart et al. \(2012\)](#); [Revenga \(1997\)](#); [Erten et al. \(2019\)](#); [Gaston and Trefler \(1997\)](#).

This paper contributes to the existing research in Pakistan by exploring the nexus between trade liberalization and skilled employment in Pakistan by utilizing the micro-level data from 1990 to 2005. Secondly, to measure trade liberalization this study uses the reduction of import tariffs which is anticipated as a more suitable proxy in comparison to past ones used in Pakistan ([Mujahid et al. \(2013\)](#); [Sajid and Ullah \(2014\)](#) utilized the “trade ratio” as a proxy to measure openness to trade) which studies examined the effect of openness to trade on employment. Thirdly, we utilized a pure trade liberalization regime (i.e. 1990-2005) for empirical analysis instead of the use of past literature time series data.

The paper is arranged as: The theoretical study framework in section 2, data and trade policy describes in section 3, an empirical framework presents in section 4, and section 5 describes the empirical results and the conclusion is at last.

Theoretical Framework

Trade theory envisions that goods market integration influences local labor markets through variations in relative commodity prices. Subsequently, commodity price

variations have been used extensively to assess the prospective effects of trade openness on labor markets ([Leamer & Levinsohn, 1995](#)). Based on the standard Heckscher-Ohlin-Samuelsson theory, trade barrier reduction affects the labor market of each country, especially in poor economies and it favors the country's abundant factors in which they have a comparative advantage (i.e., less skilled labor). Therefore, changing the economy's atmosphere from protectionism to trade liberalization should lead the structure of employment and output towards the sectors intensive in less-skilled labor. Increasing the relative demand for less-skilled workers as compared to skilled workers enhances the wages of less-skilled employment relative to skilled employment in an economy ([Robbins & Gindling, 1999](#)).

However, the New trade theorists indicate several channels through which trade liberalization raises the employment of skilled labor both in developing and developed countries ([Stokey, 1996](#)) such as changing the input quality and technology can change the employment structure across skills by changing the demand for skilled workers ([Aghion et al., 2005](#); [Amiti & Davis, 2012](#)). Hence, trade liberalization leads to higher wages for skilled labor in all economies ([Antràs et al., 2006](#); [Itskhoki & Redding, 2010](#); [Sampson, 2014](#); [Yeaple, 2005](#)). Also, the empirics in the existing literature of trade and employment holds these view ([WTO, 2017](#)).

The theoretical perspective regarding the association between trade liberalization and skilled employment is conflicting in developing economies. To clear this contradiction of increases in the employment of skilled labor, Several studies explain the theoretical links on the relationship between trade liberalization and skilled employment ([Acemoglu, 2003](#); [Ekholm & Midelfart, 2005](#); [Epifani & Gancia, 2006](#); [Poole et al., 2017](#); [Thoenig &](#)

[Verdier, 2003](#)). According to [Feenstra and Hanson \(1996\)](#); [Acemoglu \(2003\)](#); [Robbins \(2003\)](#); [Melitz \(2003\)](#); [Verhoogen \(2008\)](#) many other directions have been followed, trade liberalization in developing countries may persuade technological change. It can be, on the one side, through the imports of developed nation goods that may present the technology that becomes biased towards skilled employment ([Acemoglu, 2003](#); [Robbins, 2003](#)), on the other side, through the channel of export activities such as industries might produce high-quality goods to export, which requires the high skilled workers ([Bustos, 2011](#); [Pissarides, 1997](#); [Verhoogen, 2008](#)). Finally, other studies indicated that various stages of the production process are shifting from industrialized nations to developing nations ([Feenstra & Hanson, 1996](#); [Zhu & Trefler, 2005](#)).

Theoretically, when an economy is opened, reducing its trade barrier affects the workers in that economy ([Bustos, 2011](#); [Edwards & Behar, 2006](#); [KAREEM, 2010](#); [Mouelhi, 2007](#)). According to economic theory, employment in developing countries is influenced by international trade. Several studies consider the theoretical links between the association of openness to trade and employment after the reduction of import tariffs ([Bas & Paunov, 2018](#); [Charfeddine & Mrabet, 2015](#); [Giovannetti et al., 2006](#); [Robbins & Gindling, 1999](#)). The reduction of import tariffs induces producers to advance the exported products' quality for the fact that competition increases. As Such, firms that face the largest tariff cut are observed to increase the price of their exports.

- TL↑(import tariff ↓) → tariff reduction induces the country's producers to upgrade the quality of exports by hiring skilled labor→ demand for skilled labor↑ → prices of export↑ → profit of domestic

industry \uparrow → skilled labor \uparrow ([Fan et al., 2014](#)).

- TL \uparrow (import tariff \downarrow)→ imported commodities price \downarrow → real income \uparrow → household GDP per capita \uparrow → workers improved their skills→ skilled labor \uparrow ([Jintong, 2017](#)).
- If additional capital improves an industry's productivity → industry demand for skilled labor to the best use of capital→ skilled labor \uparrow ([E. Edmonds et al., 2006](#)).
- TL \uparrow (import tariff \downarrow) → imported commodities price \downarrow → price decreases and increases the real income → basic needs will be fulfilled → poverty reduced \downarrow → schooling increased \uparrow → less-skilled worker \downarrow ([E. Edmonds et al., 2006](#)).

The theoretical relation between trade liberalization and skilled employment is inconclusive in existing research, and as such, empirics can further guide this relationship.

Data

National Household Data

The share of skilled labor is used to represent skilled employment at the sectoral level. The sources of data are from the Labor Force Survey. Our study relates the data on trade exposure to labor markets data. Our study utilizes all available surveys of LFS conducted from 1990 to 2005 by the Pakistan Bureau of statistics for analysis. The data on the share of skilled employees included in the labor force are extracted from Labor force Surveys. Other data on sector-related and trade-related variables are borrowed from [Wu et al. \(2019\)](#). Our study uses all the available surveys of the sample period from 1990 to 2005. The sector's employment is described at 2-digit ISIC codes in the Labor Force Survey, which gives us almost 14 sectors overall and 9

sectors of manufacturing per year in Pakistan.

Following [Goldberg and Pavcnik \(2005\)](#); [Kumar and Mishra \(2008\)](#); [Bustos \(2011\)](#); [Giovannetti et al. \(2006\)](#); [Pavcnik et al. \(2004\)](#); [Borghi \(2005\)](#); [Robbins and Gindling \(1999\)](#); [Charfeddine and Mrabet \(2015\)](#), skilled labor is defined as all the working people having twelve years of schooling or greater. The skills of labor are better predictable on the educational bases ([Bustos, 2011](#); [Gonzaga et al., 2006](#); [Meschi et al., 2008](#)).

Trade Policy

The period 1990-2005, is the Pakistan trade policy in which substantial change has been taken placed and exposed economy for trading purposes. Remarkable variations were made in this trade policy as a part of SAP (1988). The reduction of tariffs rate was unpredicted and constantly changing across industries and years ([Wu et al., 2019](#)).

The most protected industries benefited more the imports of manufacturing sectors, i.e., furniture, wood product and wood, apparel & textile, and handicraft & other manufacturing faced 106% to 96% to 94% average tariffs respectively. It proposes that Pakistan privileged relatively less-skilled labor-intensive manufacturing, having a similar condition like Brazil and Colombia ([Goldberg & Pavcnik, 2003](#)).

The descriptive statistics summary of manufacturing sectors' tariffs is given in Table 1. The protection rate reduced from 62% to 13% during 1990to 2005 in the manufacturing industry. It shows that import tariffs decreased with time and this change shows the commitment of Pakistan to its negotiations with WTO to achieve low levels of tariffs. The economy of Pakistan was opened step by step by the decreasing of tariff slabs, followed by the reduction of the protection rate and then

the abolition of the non-tariff measures of trade. Furthermore, the most drastic average tariff reduction across sectors also altered the protection structure in Pakistan.

Table 1. Descriptive statistics of tariffs (selected years during 1990 to 2005)

N	Average	S.D	Mini	Maxi
1990 163.24*	9	63.22	37.84	0
1992 160	9	64.44	27.81	0
1994 120	9	51.29	20.27	0
1996 111.8*	9	41.47	19.39	0
1999 83.52	9	24.3	11.28	0
2001 60	9	19.99	9.98	1.83*
2003 48.92	9	16.51	8.2	3.5
2005 45.71	9	13.76	8.74	0.29*

Source: Borrowed from [Wu et al. \(2019\)](#)

Empirical Framework

This section presents the method employed to accomplish the empirical study of the nexus of trade liberalization and skilled employment in Pakistan. To examine the central question of this study, our empirical methodology is based on the evaluation of equation (1) using panel setting in accordance with the trade-labor literature ([Attanasio et al., 2004](#); [Giovannetti et al., 2006](#); [Mouelhi, 2007](#); [Zakhilwal, 2001](#)). The empirical analysis of this study estimates the impact of trade liberalization on skilled employment in the case of overall sectors (i.e., Pakistan) and the manufacturing sector using 2-digit sectoral level data of Pakistan. Our study to empirically investigate the impact of trade liberalization on skilled

employment follows the study of [Charfeddine and Mrabet \(2015\)](#) in which skilled labor is the workers with higher education. The idea is to explore the variation in skilled employment and tariffs across sectors and also overtime identify the effect of trade liberalization on skilled employment as shown by the econometrics model;

$$SK_{jt} = \beta_0 + \beta_1 T_{jt} + \beta_2 X_{jt} + \varepsilon_{jt} \quad (1)$$

Following [Goldberg and Pavcnik \(2005\)](#); [Kumar and Mishra \(2008\)](#); [Bustos \(2011\)](#); [Giovannetti et al. \(2006\)](#); [Pavcnik et al. \(2004\)](#); [Borghini \(2005\)](#); [Robbins and Gindling \(1999\)](#); [Charfeddine and Mrabet \(2015\)](#), we used the share of skilled labor (SK) in sector j at time t in the case of Pakistan. β_1 is the coefficient on T for tariffs in sector j at time t and captures the

impact of tariffs reduction on skilled labor. Vector X_{jt} shows the set of sectors and year indicators. Further, we test the robustness and lagged analysis using trade and industry-related control variables in Pakistan.

To explore trade liberalization's impact on skilled employment, we used the proxy of sectoral level tariffs for trade liberalization. This proxy (i.e, import tariff reduction) is better than the past one because existing literature used trade ratio for trade openness ([Charfeddine & Mrabet, 2015](#); [Kakarlapudi, 2010](#); [Kien & Heo, 2009](#); [Yasin, 2007](#); [Zakhilwal, 2001](#)). The problem of over-invoicing and under-invoicing in exports and imports generally exists in less developed nations and Pakistan also grabbed under this situation ([Bhagwati, 1964](#); [Lane, 2007](#); [Mahmood, 1997](#); [Mahmood & Azhar, 2001](#); [Sheikh, 1974](#)). So, using the trade ratio does not show a clear picture. However, for trade liberalization, we used import tariffs which is better than the proxy used in past

studies ([Agbahoungba, 2019](#); [Bas & Paunov, 2018](#); [Bustos, 2011](#); [Casacuberta et al., 2004](#); [Edwards & Behar, 2006](#); [Giovannetti et al., 2006](#); [Goldberg & Pavcnik, 2003](#); [Menezes Filho & Menezes Filho, 2006](#); [Mouelhi, 2007](#); [Robbins & Gindling, 1999](#); [Wu et al., 2019](#)).

Results and Discussion

In this section, we discuss the findings of our study on the relationship between the openness of trade and the employment of skilled labor for the sample period (1990-2005) in Pakistan. The main results of our study concerning the association of liberalization of trade and employment of skilled labor in the case of overall sectors and manufacturing sectors, respectively based on equation (1) are contained in Table 2. The sample dataset consists of sectors are with all the available information on tariffs. The coefficient and their standard errors are presented in Table 2.

Table 2. Trade Liberalization and Skilled labor

	(1)	(2)
Tariffs	-0.00443*** (0.00079)	-0.00641*** (0.00123)
Sector indicators	Yes	Yes
Year Indicators	Yes	Yes

Note. Share of Skilled workers is dependent. Column 1 for Pakistan and column 2 for manufacturing. Standard errors (S.E) clustered on the sector are presented in parentheses. *** for 1, **for 5, & *for 10 percent. N is 112 in the first column for the overall case and 72 in the second column for the manufacturing case.

Table 2 presents the share of skilled labor in overall sectors and manufacturing sectors during the trade regime of Pakistan. There is a rising trend in the share of skilled labor in overall sectors and manufacturing sectors as shown in

columns 1 and 2 respectively. It indicates that there is an increase in the demand for skilled labor leading to the increase of skilled employment in sectors that practice the larger tariffs cuts. These findings are in line with the view that trade liberalization leads to a rise in the demand for skilled employees in both developing and developed nations. The estimates show that trade liberalization negatively affects skilled labor and its coefficient is statistically significant in all sectors. The empirical findings indicate that the hypothesis of the extended

Heckscher-Ohlin-Samuelson theory did not hold in Pakistan. Our findings are matched with the viewpoint of the new trade theory (Stokey, 1996). They hold the view that the liberalization of an economy leads to more markets which in return persuades superior Research and Development (R&D), enhances technical knowledge, and reallocates employment towards advanced activities that require more educated workers. Through these several interrelated channels in developing countries, trade liberalization increases the returns to human capital (i.e., skilled employment). Whereas in empirical literature the findings on this association are mixed (Agbahoungba, 2019). Our results on the relationship between trade liberalization and skilled employment are consistent with those of Borat (1999); Birdi et al. (2002); Bustos

(2011); Meschi et al. (2008); Fedderke et al. (2000); Edwards (2003); Bustos (2005); Raju et al. (2016); Bell and Cattaneo (1997); Natrass (1998); Raju et al. (2016); Giovannetti et al. (2006); Dee et al. (2011); Gandelman et al. (2004); Robbins and Gindling (1999); Agbahoungba (2019) and contrast the studies of Mrabet (2012); Brühlhart et al. (2012); Revenga (1997); Erten et al. (2019); Gaston and Trefler (1997).

Robustness Checks

For robustness checks, we added several control variables in our main model. In the regression models, the addition of these several control variables such as trade-related and industry-related variables depicts the true picture. The findings are shown in Table 3 and Table 4.

Table 3. Trade Liberalization and Skilled labor in Manufacturing Sector

	(1)	(2)	(3)	(4)
Tariffs	-0.00641*** (0.00123)	-0.00678*** (0.00194)	-0.00787*** (0.00244)	-0.00844*** (0.00251)
Lagged Exports (LX)		-1.76e-10* (1.03e-10)	-5.64e-10 (4.71e-10)	-2.53e-10 (5.39e-10)
Lagged Imports (LM)		1.56e-09*** (4.54e-10)	1.86e-09 (1.57e-09)	1.88e-09 (1.57e-09)
LX*NEER			0 (0)	0 (0)
LM*NEER			-0 (0)	-0 (0)
Log GDP				0.0745*** (0.0261)
Log GFCF				-0.0591** (0.0230)
Industry indicators	Yes	Yes	Yes	Yes
Time Indicators	Yes	Yes	Yes	Yes

Note. Share of Skilled workers is dependent. Standard errors (S.E) clustered on the sector are presented in parentheses. *** for 1, **for 5, & *for 10

percent. N is 72 in the first columns and 63 in 2–4 columns. NEER stands for the nominal effective exchange rate in the above table.

Table 4. Trade Liberalization and Skilled labor in Manufacturing Sector

	(1)	(2)	(3)	(4)
Tariffs	-0.00641*** (0.00123)	-0.00610*** (0.00115)	-0.00648*** (0.00123)	-0.00704*** (0.00140)
Import Penetration Ratio (IP)		-0.0506** (0.0212)	0.0622 (0.0723)	0.0113 (0.0806)
Export Orientation (EO)		-0.0312 (0.0262)	-0.177** (0.0785)	-0.187** (0.0862)
IP*NEER			-0.00114 (0.000831)	-0.000599 (0.000878)
EP*NEER			0.00159* (0.000949)	0.00154 (0.00106)
Log GDP				0.0644** (0.0266)
Log GFCF				-0.0600*** (0.0218)
Industry Indicators	Yes	Yes	Yes	Yes
Year Indicators	Yes	Yes	Yes	Yes

Note. Share of Skilled workers is dependent. Standard errors (S.E) clustered on the sector are presented in parentheses. *** for 1, **for 5, & *for 10 percent. N is 72 in all columns.

The results show that the significance and the magnitude of the protection coefficient are not altered with the inclusion of these variables. The addition of these several trade-related variables and industry-related variables is not guided by the trade theory. Table 4 presents the findings regarding the industry-related variable and shows that after incorporating these controls in the main model, the significance and sign of protection rates coefficient have remained the same. Moreover, following [Wu et al. \(2019\)](#), we also test the impact of the net importers and net exporters by introducing $nm*tariffs$ and $nx*tariffs$ in the model. Our results remain the same after the inclusion of these variables, with no

change in the sign of coefficient and significance. Results are available upon request from the authors. In addition, the results of our robustness checks for Pakistan are also available upon request.

Lagged Policy and Skilled Employment

Now, we explore the modification of employment as a result of the fact that a fall in protection rates might take time to perform by inspecting the nexus between lagged-tariffs and skilled-employment. The findings are given in Table 5 and are assessed similarly to the results shown in Table 2 with the exclusion of the tariffs, now we used the lagged tariffs in our main model.

Table 5. Lagged Trade Policy and Skilled labor

	(1)	(2)
Lagged Tariffs	-0.00437*** (0.000789)	-0.00533*** (0.00124)

	(1)	(2)
Industry indicators	Yes	Yes
Year Indicators	Yes	Yes

Note. Share of Skilled workers is dependent. Standard errors (S.E) clustered on the sector are presented in parentheses. *** for 1, **for 5, & *for 10 percent. Column 1 for Pakistan and column 2 for manufacturing. N is 98 in the first column for the overall case and 63 in the second column for the manufacturing case.

The results show that lagged tariffs significantly affects the employment in overall and manufacturing sectors as shown in column 1 and 2, respectively. The coefficient on lagged tariffs is negative and significant. The lagged tariffs' impact on skilled labor is the same as that of tariffs. The significant impact between the associations of lagged tariffs and skilled employment persuades our study to further test the robustness with the inclusion of lagged tariffs. Now we move

to check the impact of lagged tariffs with trade-related and industry-related variables.

Table 6 shows the relationship between the trade-related variables (i.e., controls) and the lagged tariffs. The robustness checks revealed that there is a negative and significant connection with the lagged-tariffs. The robustness checks with the lagged tariffs did not change the sign and magnitude of the protection coefficient. In Table 7, we did the same analysis by including industry-related variables in our main model. Lagged tariffs coefficient is robust after including industry-related controls and revealed the negative relation between lagged policy and skilled employment. The lagged-tariffs indicate similar results as that of the tariffs presented in Table 2.

Table 6. Lagged Trade Policy and Skilled labor in Manufacturing Sector

	(1)	(2)	(3)	(4)
Lagged Tariffs	-0.00533*** (0.00124)	-0.00399*** (0.00130)	-0.00444*** (0.00160)	-0.00429*** (0.00168)
Lagged Exports (LX)		-1.80e-10* (1.08e-10)	-4.90e-10 (5.15e-10)	-1.30e-10 (5.95e-10)
Lagged Imports (LM)		1.75e-09*** (4.37e-10)	1.62e-09 (1.57e-09)	1.48e-09 (1.60e-09)
LX*NEER			0 (0)	-0 (0)
LX*NEER			0 (0)	0 (0)
Log GDP				0.0854*** (0.0274)
Log GFCF				-0.0686*** (0.0246)
Time Indicators	Yes	Yes	Yes	Yes
Industry Indicators	Yes	Yes	Yes	Yes

Note. Share of Skilled workers is dependent. Standard errors (S.E) clustered on the sector are presented in parentheses. *** for 1, **for 5, & *for 10 percent. N is 63 in all columns.

Table 7. Lagged Trade Policy and Skilled labor in Manufacturing Sector

	(1)	(2)	(3)	(4)
Lagged Tariffs	-0.00533*** (0.00124)	-0.00540*** (0.00114)	-0.00627*** (0.00134)	-0.00651*** (0.00163)
Import Penetration Ratio(IP)		-0.0561*** (0.0209)	0.0619 (0.0752)	-0.00475 (0.0942)
Export Orientation (EO)		-0.0176 (0.0279)	-0.224*** (0.0834)	-0.239** (0.0957)
IP*NEER			-0.00122 (0.000935)	-0.000690 (0.00103)
EP*NEER			0.00248** (0.00108)	0.00252** (0.00127)
Log GDP				0.0726** (0.0303)
Log GFCF				-0.0741*** (0.0260)
Industry Indicators	Yes	Yes	Yes	Yes
Year Indicators	Yes	Yes	Yes	Yes

Note. Share of Skilled workers is dependent. Standard errors (S.E) clustered on the sector are presented in parentheses. *** for 1, **for 5, & *for 10 percent. N is 63 in all columns.

In a nutshell, we observed a significant connection between trade liberalization and the share of skilled labor in the overall sectors and manufacturing sectors. The link between skilled employment and trade liberalization is negative. After incorporating trade-related controls we found findings are robust for all models. This research also established a significant link between lagged tariffs and share of skilled labor and the results are also insensitive to the inclusion of other trade-related and industry-related control variables.

Conclusion

In 1988, Pakistan opened its economy to the trading atmosphere as a part of the SAPs of IMF, and during this period, there was a drastic reduction in protection rates. This reduction in tariffs was unexpected and continuously varied across sectors.

Using a micro-level dataset from Pakistan, we have investigated the nexus of trade liberalization and skilled employment in Pakistan. We found that there is a relationship between trade liberalization and skilled employment. Trade openness raised the demand for skilled labor in Pakistan. A one percentage point reduction in the protection rate increased the 0.4 percentage point of skilled-labor in overall and 0.5 percentage points in manufacturing sectors in Pakistan. Our empirical findings are robust after incorporating other control such as trade-related and industry-related variables. Our study also explored the influence of lagged policy on skilled employment. We found the same influence of lagged tariffs on skilled employment as indicated by our empirical estimates. Our findings are also robust and insensitive to the inclusion of several controls. The findings of our study have significant implications for policymakers; for example, the government should provide free education programs and technical packages to the poor and make policies to open the economy because as economies

open competition increases, so the domestic producers improve the quality by hiring educated as well as skilled and trained labor force and this result in the increased in skilled labor.

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