

Workers' Social Capital and Firms' Output Performance: Empirical Evidence from Small and Medium Firms

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Abstract

The study aims to investigate empirically whether workers' social capital attributes affect firms' output performance. To achieve this objective, workers of small and medium firms are interviewed, and empirical analysis is carried out at the firm level for a sample of 100 firms, located in Rawalpindi and Islamabad. Findings of the study suggest, at large, workers' social capital attributes have a positive effect on firms' output performance. This indication is derived from the fact that in six out of nine specifications, the social capital attributes of workers enter the model significantly and positively. Perceiving the result prudently, firms' output performance upsurges with the extension of workers' social participation and networking, whereas decreases as workers' preserve more social trust attributes. The result points towards the fact that a certain level of trust may prove beneficial; having enhanced exchange of unstated learning and hazard taking. However, firms that exceedingly trust other firms might be misguided in both input and output decisions, which poses a negative impact on their output performance.

Keywords: Social Capital, Social Trust, Firms' output, Small Enterprises, Cross-sectional Data

JEL Classification: C21, J29, L25, L20

1. Introduction

Producer (firm) is one of the essential economic units that makes decisions about output supply and input demand. To explore the optimizing behavior of firms about output supply and input demand, economists developed a well-proven production theory. In conventional production theory, the optimizing behavior of a firm is captured with two approaches namely profit maximization and cost minimization, and the solution of each approach drives inputs demand and output supply for the firm. In light of the conventional production theory, numerous

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determining factors of firms' output performance have been deliberated upon in the literature.

Among others, capital and labor are the most eminent factors, hence in the literature on productivity analysis, the firm's output supply is mainly linked with the efficiency of these two factors. As far as the efficiency of labor is concerned, most of the received studies on the subject explains labors' efficiency with their human capital attributes such as skill, education, and experience (Clercq and Arenius, 2003; Griffith and Simpson, 2004; Dimov and Shepherd, 2005; Marimuthu et al. 2009; Felicio et al. 2012; Felicio et al. 2014). However, to know the factors of firms' output performance, we have to go profoundly to figure out factors that shape laborers' behavior and consequently their efficiency.

In recent times, an attempt has been made explaining that apart from conventional factors, the non-conventional factors like ethical attributes (Haq et al. 2015; Berrone et al, 2007; Spence and Morland, 2010) religiosity and spirituality (Freeman et al. 2010; Ahmad and Pi-Shen, 2009; Lather, 2009; Gibb, 2005) *inter alia* too shape workers' behavior and hence firms' output performance. In addition, social capital which comprises social participation, social trust and social networking also shapes workers' behavior and therefore affects its efficiency that in turn mark firms' output performance. For example, Baron et al. (2000) state that the arrangement of connections among workers and inside gatherings make possible the completion of specific tasks that are otherwise not feasible. Moving further, they argue that an organizational perspective, social capital can be organized into three types i.e. holding social capital, spanning social capital and connecting social capital. Holding social capital refers to the connections between equally invested persons or the support received owing to homogeneity. On the other hand, spanning social capital refers to the working of associations between heterogeneous persons. Finally, the connecting social capital states the standards of regard and systems of confiding in the connection between people who are cooperating crosswise over unequivocal, formal or regulated power in the public arena.

Collins and Clark (2003) argue that along with the social interactions of top management, workers' social networks and human resource practices posture a positive impact on firms' output performance. Fu et al. (2004) state that social capital and trust are equally helpful in firms' output performance, for the reason that social capital creates a trusting relationship for entrepreneurs and workers to their matching partners, which prove beneficial for firms' performance. Felício et al. (2012) and Tantardini and Kroll (2016) argue that social network is an earnest

resource of business development, as it provides access to conventional assets required for new business. In addition, social network act as a helper in market contact, manufacture access, financial contact and information admittance.

However, on the subject of the relationship between workers' social capital and firms' output performance, studies have not reached consensus. Some studies (Flores and Solomon, 1998; Langfred, 2004; Morales et al., 2011) remain skeptical about the positive relationship between social capital attributes of workers and firms' performance. They argue that a high level of social capital makes good recognition of the firm, however too much social interaction, blind trust and extended social relations reduces time allocation to work that in turn can significantly hamper output performance of the firm. Moreover, they argue that trust is great, however, conditional great. To be exact, a certain levels of trust may prove beneficial being helpful in enhancing the exchange of unstated learning and hazard taking, however, firms that exceedingly trust other firms might be misguided in both input and output decisions, which posture negative impact on its output performance.

Keeping in view the contradictory nature of social capital in determining workers' efficiency and hence firms' output performance, this study goes deeply to examine the effects of different components of workers' social capital on firms' output performance. To be exact, we want to investigate how workers' social capital attributes like social participation, social trust, and social interaction and networking affect workers' efficiency and hence firms' performance. For analysis, we confine to small and medium firms located at Rawalpindi and Islamabad. The following reasons may explain, why? First, small and medium enterprises (SMEs) play a vital role in the economic growth and industrial development of Pakistan. For instance, according to the Small and Medium Enterprises Development Authority (SMEDA)' report, SMEs holds a 40 percent share in annual GDP and provides employment to 80 percent of the non-agricultural labor force. Secondly, most of the existing studies on the subject covered large firms, however, workers' attributes are actually more inducing in the performance of small firms.

The rest of the study is organized as follows. Section 2 illustrates methodology, which includes empirical model, data, definition, and construction of variables, sample, sampling technique, sample area, and estimation technique. Section 3 presents the summary statistics of variables under consideration. Section 4 presents the estimated results and their interpretations. Finally, section 5 offers some concluding remarks extracted from the study findings.

2. Methodology and Data

The methodology section covers four subsections. Subsection 2.1 illustrates the specification of an empirical model to unfold the response of workers' social attributes on the production unit's output performance. Section 2.2 presents the definition and construction of variables under consideration. Subsection 2.3 holds a detailed discussion on the data source, sample size, and sample area. The last subsection 2.4 presents an estimation technique in order to look at the effects of social attributes on firms' output performance.

2.1 Empirical Model

This section presents the empirical model in order to assess empirically the impact of workers' social attributes on firm output performance. The empirical analysis in this study builds upon Field (2003); Felicio et al. (2014); Haq et al. (2015); Tantardiric and Kroll (2015), aiming to examine the effect of social capital of the workers on firm output performance. Following eq. 1 presents the empirical model.

$$FP_i = \beta_0 + \beta_1 SC_i + \beta X_i + \varepsilon_i \quad (1)$$

Where firm productivity (FP_i) is our dependent variable that measures i^{th} firm's productivity. SC_i represents social capital which is our variable of interest and covers different social attributes of workers (i.e. interlinking and family support, personal relation, social relation, social trust, social communication, and networking). X_i is the vector of control variables that includes number of workers, working hours of workers, physical capital, workers' education, workers' experience, provision of government facilities and market-related facilities. Whereas ε_i is the error term.

2.2 Definition and Construction of Variables

Since our data set is primary, collected through the survey, hence most of the underline variables are self-constructed. This sub-section provides definitions and construction procedures as well as discusses the methodology under consideration.

2.2.1 Dependent Variable

The dependent variable is *Firm Productivity* (FP_i), which is measured as the financial value of the firm's sale per annum (in PKR). Two reasons may explain why we used this proxy of firm output performance. Firstly, the existing literature on the subject used this proxy i.e. financial value of the firm's sale (i.e. Haq et al. 2015; Pettigrew et al. 2002, Eisenhardt and Zbaracki, 1992, Porter, 1985, Rumelt,

1974, Schendel and Hofer, 1979 *inter alia*). Secondly, as the sample SMEs produce different products, hence to avoid the measurement errors in production units we used the financial value of sale per annum as a proxy of firm productivity.

2.2.2 Independent Variables

Workers' Social Capital(SC_i): Since key objective of the study is to analyze the impact of workers' social attributes on a firm's productivity, hence workers' social capital is our variable of interest among the set of independent variables. We developed an index, termed as Social Capital, in order to measure workers' social attributes. The index captures five social characteristics of workers that are status, interlinking and family support, personal relation, social relation, social trust, social communication, and networking. These values are measured on scale 1 to 5 (5 for the highest social capital of worker and 1 for the lowest). Hence, the individual worker's social attributes are constructed by summing the subsequent values as;

$$SC_k = \frac{\sum_{j=1}^5 SA_j}{\text{Total}} * 100$$

SC_k is the index of kth worker's social capital attributes. $\sum_{j=1}^5 SA_j$ is the sum of all five social attributes held by the kth worker in a firm. As the workers' social attributes comprise of five characteristics which take value from 1 to 5, hence the total sum equals to 25. Similarly, the average social attributes of the ith firm are measured as follows;

$$SC_i = \frac{\sum_{k=1}^n SC_k}{\text{Number of workers within a firm}}$$

SC_i shows the average social attributes of the ith firm.

Physical Capital of Firm(PC_i): Physical capital of firm include the monetary value of all equipment, apparatus, buildings and financial capital of the firm. The physical capital of the firm is measured by the sum of the monetary value of machinery, apparatus, building and financial capital in a given fiscal year.

Number of Workers (NW_i) : Number of workers includes the total number of technical and non-technical workers of the firm. It should be noted that the employer is also counted as a worker, as in most of the SMEs employer strictly takes part in the production process.

Workers' Education(ED_i): Workers' education includes both general and technical education of employed workers. The average education level of Firm's workers is calculated as;

$$FED_i = \frac{\sum_{i=1}^n ED_i}{\text{Total numbers of Firms' Workers}}$$

Where, FED_i is the i th firm's workers average education level and $\sum_{i=1}^n ED_i$ is the sum of the education of firms' workers.

Workers' Experience (EXP_i): Worker's experience captures the overall experience of a worker i.e. the experience of the worker within the existing firm and previous experience in other firms. Where the average experience of the firm's workers is calculated as;

$$FEXP_i = \frac{\sum_{i=1}^n EXP_i}{\text{Total numbers of Firms' Workers}}$$

$FEXP_i$ captures the experience level of workers of the i th firm. $\sum_{i=1}^n EXP_i$ is the sum of the experience of the firms' employee.

Market Related Facilities (MRF_i): The market-related facilities contain nine factors including availability of raw material, loan, infrastructure (e.g. water, road, telephone, and electricity), skilled labor force, government policies, raw material, foreign goods availability, taxation and marketing skills. In order to analyze the impact of the provision of these facilities on the firm's output performance, we developed an index. We assigned scales 1 to 3 to all these nine different types of facilities, hence 27 is the total score. It should be noted that the higher scale demonstrates the greater provision of market-related facilities. For the i th firm, the index is constructed as follows;

$$MRF_i = \frac{\sum_{j=1}^9 F_j}{27} * 100$$

Government Related Facilities (GRF_i): The government-related facilities contain seven factors namely the provision of small loan, interest-free loan, infrastructure (e.g. water, road, telephone, and electricity), exemption of tax, subsidy on (raw material, electricity, transportation), government centers for sale & purchase of production and training facilities for workers. Like the previous case, we assigned scales 1 to 3, therefore 21 makes the total score. For the i th firm the index is constructed as follows;

$$GRF_i = \frac{\sum_{j=1}^7 F_j}{21} * 100$$

2.3 Data Source, Sample Size, and Sample Area

Keeping in view the nature of the study, the survey-based data is used that was collected from 100 Small and Medium Enterprise (SMEs) units in Rawalpindi and Islamabad region. The sample is drawn from those SMEs units which were operating uninterrupted for the last three consecutive years. The condition is picked especially because such production units best catch the transformative phases of business ventures. These firms were carefully chosen from almost all business and production sectors of Rawalpindi and Islamabad. These include embroidery, bread-making centers, furniture, bakeries, tailoring centers, boutiques, shoemaking centers, and local drinks items centers. A total of 114 SME units were visited, however, only 100 provided complete information. As no official statistics of SMEs in the sample area, is available, therefore, the snowball sampling technique was adopted for selecting the SMEs units.

2.4 Estimation Technique

The empirical model eq.1 is estimated through Ordinary Least Square (OLS) estimation technique due to multiple reasons. Firstly, our dependent variable is firm's sale per annum which is continuous and holds lower standard deviation, indicating normality of data set. Secondly, the OLS estimation give correct and efficient estimators if the estimated model is free from the problems of multicollinearity and heterogeneity. To detect these problems, we applied the Variance Inflation Factor (VIF) test in order to test the multicollinearity problem. The results of VIF test indicated that all of the estimated models were free from multicollinearity issue. To look at the heteroscedasticity issue, further diagnostic tests were exploited using Breusch-Pagan test which shows that in all specifications the null hypothesis ($\hat{\sigma}^2 = 0$ constant variance) is not rejected, indicating that our estimated models are free from heterogeneity problem². Hence, keeping in view both the nature of dependent variable and the results of diagnostic tests, we safely conclude that OLS is the most appropriate estimation technique for purposed empirical model.

3. Summary Statistics of Variables Under-Consideration

Before discussing the relationship between firm performance and social capital of firm workers, being broken down by Ordinary Least Square (OLS) estimation strategy, the outline of engaging insights of factors under consideration are given in the accompanying Table 3.1.

² VIF and Breusch-Pagan tests results are reported in Table 4.1.

The given statistics demonstrate the mean, standard deviation, and range of different variables. Low standard deviation expresses that the information inclines toward the mean. Keen inspection indicates that the log of 'firms' output' and 'capital worth' though ranges between 12-18 and 10-19 per annum, respectively, still the standard deviation is quite low, indicating the data normality. Similar is the case with other important variables as indicated in Table 1. Summary statistics show that firms are quite diverse as the number of workers ranges between 4-18, the worker's year of schooling ranges between 4-15 while their experience ranges between 2-30 years. Hence, the sample characteristics indicate the availability of required diversity in the data for prudent analysis. Last but not least, the indexes built for firms and workers also behaves nicely as indicated via the mean and standard deviation estimates.

Table 1: Summary statistics

Variable	Definition	Notation	Obs.	Mean	Std. Dev.	Min	Max
Firm's Productivity	Log of Firm's annual sale	FP_i	100	14.41	1.31	12	18
Machinery and Capital Capacity	Log of Firm's Total Physical Capital Market Value	PC_i	100	14.60	1.72	10	19
Firm's Workers	Number of Workers	NW_i	100	4.27	1.66	4	18
Firm's Workers' Education	Education of Worker (in Year)	ED_i	100	9.12	2.55	4	15
Firm's Workers' Experience	Experience (in Year)	EXP_i	100	13.99	5.66	2	30
Market Factors	Market Related Facilities (Index)	MRF_i	100	76.37	10.57	52	96
Government Sector Factors	Government Related Facilities (Index)	GRF_i	100	46.23	7.39	33	71
Social Participation (interlinking with different organizations)	Average SP-1	SP_{1i}	100	67.27	5.36	55	79

Social Participation (social relations with neighbor and community)	Average SP-2	SP_{2i}	100	53.92	9.97	27	80
Social Participation (social relation and relation with family members)	Average SP-3	SP_{3i}	100	73.12	5.937	58	85
Social Participation Index	Weighted SP (Index)	SPI_i	100	73.12	5.94	58	83
Social Trust (trust on firm co-workers)	Average ST-1	ST_{1i}	100	83.12	6.82	88	76
Social Trust (trust on governmental organizations)	Average ST-2	ST_{2i}	100	52.70	7.38	35	77
Social Trust (trust on people from same or other ethnicities or religions)	Average ST-3	ST_{3i}	100	51.82	8.78	31	77
Social Trust Index	Weighted ST (Index)	STI_i	100	83.52	5.39	71	97
Social Interaction and Networking Index	Weighted SIN (Index)	$SINI_i$	100	77.61	6.73	61	90

4. Results and Discussion

Table 2 illustrates the results of our empirical model (eq. 1). As the title indicates, the key focus of this study is to analyze the effect of workers' social capital on firms' output performance, hence we focus mainly on the estimated coefficients of workers' social capital attributes. As social capital covers three different forms (i.e. Social Participation, Social Trust, and Social Network) and each has their own attributes, hence, to capture the response of the variable of interest, we have estimated nine specifications [Model 1 – 9]. It should be noted that firms' physical capital (PC_i), number of workers (NW_i), firms' workers education (ED_i), firms' workers experience (EXP_i), market-related facilities (MRF_i), and government-related facilities (GRF_i) are common to all specifications.

In model [1] social capital attributes of workers are captured through Social Participation (interlinking with different organizations). Results show that our variable of interest i.e. Social Participation (SP_1) enters the model statistically

significantly with a positive sign (0.035, $p < 0.1$), which shows that interlinking of firms' workers with other organization affects firms' output performance positively. The result may be justified in the spillover effects and positive externalities perspective. To be exact, greater interlinkages provide access to updated technology and production processes as well as to greater market and financial contacts which improve the production process and hence place a positive impact on firms' output performance. Our results are in conformity with existing literature as Fu et al. (2004); Felicio et al. (2012); and Felicio et al. (2014) argue that social networks lead to better output performance by firms.

In model [2] we have used another variable of social participation (SP_2) [social relations with neighbor and community], which holds a negative sign that is statistically insignificant. The results may be explained in terms of time allocation, that participation in social work, public meetings, and local affairs reduce workers' working hours which in turn reduces firms' output. Moving further, in model [3] the variable of interest i.e. social participation (SP_3) [social relation and relation with family members] have a positive and significant impact on firms' output performance (0.028, $P < 1$). This variable captures the family support i.e. the encouragement received regarding different challenges faced by entrepreneurs and motivation received by the workers. Hypothetically this result is acceptable as with higher social participation (SP_3), both the employer and employee can easily overcome different challenges being faced at the workplace and therefore potentially contribute to firms' output.

In model [4] the overall social participation index (SPI_1) enters the model positively, which is statistically significant (0.113, $P < 0.05$). This points towards the statement that the firm achieves higher output if its workers hold more social capital. The reasons are as discussed above for the social participation variable i.e. enhanced exposure to technology and market. Secondly, social interaction provides motivation and encouragement, hence influence efficiency at workplace.

Table 2: Empirical Findings (Dependent Variable is Sale of Firm Per Annum (in log))

Variables	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7	Model 8	Model 9
PC_i	0.341*** (0.000)	0.319*** (0.000)	0.339*** (0.000)	0.396*** (0.000)	0.388*** (0.000)	0.362*** (0.000)	0.362*** (0.000)	0.366*** (0.000)	0.381*** (0.000)
NW_i	0.426*** (0.000)	0.441*** (0.000)	0.392*** (0.000)	0.410*** (0.000)	0.482*** (0.000)	0.455*** (0.000)	0.403*** (0.000)	0.461*** (0.000)	0.441*** (0.000)
ED_i	0.057 (0.289)	0.070 (0.27)	0.062 (0.265)	0.061 (0.273)	0.056 (0.326)	0.059 (0.297)	0.645 (0.263)	0.608 (0.286)	0.070 (0.20)
EXP_i	0.062*** (0.005)	0.065*** (0.004)	0.057*** (0.009)	0.084*** (0.000)	0.077*** (0.001)	0.084*** (0.000)	0.796*** (0.001)	0.077*** (0.001)	0.079*** (0.001)
MRF_i	0.263** (0.02)	0.025** (0.04)	0.022** (0.05)	0.033*** (0.006)	0.025** (0.027)	0.029** (0.017)	0.026** (0.031)	0.030** (0.013)	0.032*** (0.008)
GRF_i	0.003 (0.461)	0.001 (0.410)	0.0006 (0.966)	0.013 (0.359)	0.011 (0.467)	0.011 (0.470)	0.009 (0.547)	0.012 (0.436)	0.004 (0.418)
SP_{1i}	0.035* (0.06)	-----	-----	-----	-----	-----	-----	-----	-----
SP_{2i}	-----	-0.010 (0.415)	-----	-----	-----	-----	-----	-----	-----
SP_{3i}	-----	-----	0.028* (0.074)	-----	-----	-----	-----	-----	-----
SPI_i	-----	-----	-----	0.113** (0.032)	-----	-----	-----	-----	-----

Table 4.1: Empirical Findings (Dependent Variable is Sale of Firm Per Annum (in log)) Continued

Variables	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7	Model 8	Model 9
ST _{1i}	-----	-----	-----	-----	0.026* (0.081)	-----	-----	-----	-----
ST _{2i}	-----	-----	-----	-----	-----	-0.018 (0.257)	-----	-----	-----
ST _{3i}	-----	-----	-----	-----	-----	-----	0.022* (0.056)	-----	-----
STI _i	-----	-----	-----	-----	-----	-----	-----	-0.035* (0.064)	-----
SINI _i	-----	-----	-----	-----	-----	-----	-----	-----	0.031** (0.05)
Const.	9.542 (0.000)	7.880 (0.000)	9.508 (0.000)	10.362 (0.000)	10.058 (0.000)	9.182 (0.000)	8.847 (0.000)	9.921 (0.000)	11.289 (0.000)
No of Obs.	100	100	100	100	100	100	100	100	100
F-Stat.	8.98*** (0.000)	8.52*** (0.000)	7.55*** (0.000)	6.76*** (0.000)	6.39*** (0.000)	6.32*** (0.000)	6.13*** (0.000)	6.43*** (0.000)	7.48*** (0.000)
R ²	0.366	0.354	0.364	0.431	0.418	0.415	0.407	0.419	0.427
Adj.R ²	0.325	0.313	0.316	0.367	0.352	0.349	0.341	0.354	0.370
Root MSE	1.080	1.090	1.087	1.046	1.058	1.061	1.067	1.057	1.043
Breusch- Pagan Test									
Chi ²	3.58	3.47	3.90	0.03	0.23	0.15	0.04	0.04	0.09
Prob. of Chi ²	0.55	0.48	0.82	0.86	0.64	0.71	0.84	0.85	0.76
Variance Inflation Factor (VIF)Test									
Mean VIF	1.30	1.35	1.27	1.42	1.37	1.39	1.40	1.40	1.41

***, **, * presents statistical significance level at 1, 5 and 10 percent, respectively

In models 5 to 8, we have examined the impact of the second component of social capital (i.e. social trust) on firms' output performance. In model [5] the first factor of social trust, trust on firm co-workers (ST_{1i}) holds a positive sign that is statistically significant (0.026, $P < 0.1$). The result point toward the statement that the trust of the boss on subordinates is contributing significantly to firms' output performance. The result may be explained in the up surging of workers' efficiency, as trustful relations of the employer with their workers increase motivation and efficiency. The result bears a resemblance to the findings of Fu et al. (2004); Tantardini and Kroll (2016) that social trust is supportive to firms' output performance.

In model [6], we replace trust on firm coworkers with trust on governmental organizations (ST_{2i}) which holds negative sign but is statistically insignificant. The result may be explained in the lack of interest and negligence of the concerned government organizations in the promotion of small firms in the sample area. Moving further to model [7]; social trust is captured through people from the same or other ethnicities or religions (ST_{3i}), which have a positive and significant impact on firms' output performance (0.022, $P < 0.1$). The result point toward the statement that trustful relations within groups play a vital role in firms' output performance and a firm can increase its output by holding trustful relations with all these groups. Finally, in model [8] the index of social trust (STI_i) demonstrates negative and significant (- 0.035, $P < 0.1$) impact on the dependent variable. This resembles with the findings of Morales et al. (2011) that trust is great, however, conditional great. To be exact, although certain levels of trust may prove beneficial having improved exchange of unstated learning and hazard taking, however firms' that exceedingly trust on other firms might be misguided in both input and output decisions, which posture negative impact on its output performance.

In model [9] the variable of social capital that is social interaction and networking index ($SINI_i$) enters the model positively and significantly (0.031, $P < 0.1$). The result indicates that higher the interaction with leaders, leaders of religious organizations and with politicians, more the entrepreneurs get benefits in the form of higher output sale. The result may be explained in a way that with the increase in the number of customers and be able to find out ways from different hitches due to such type of social networking, such settings can help the entrepreneur to solve different problems in less time.

Having discussed the variables of interest, it is also important to elaborate that the conventional control variables including firms' physical capital (PC_i), number of workers (NW_i), firms' workers' education (ED_i), firms' workers' experience

(EXP_i), market-related facilities(MRF_i), and government-related facilities (GRF_i) are kept common to all models and these enter the models consistently. Among the control variables, firms' physical capital (PC_i) has a positive and significant effect on firm output in all models. This demonstrates that physical capital (machinery, hardware, building) is one of the key factors explaining firm output performance. The result is in line with the findings of Jarillo (1998) and Swierezek and Ha. (2003). The other control variable i.e. the number of workers (NW_i), also enters the model positively and significantly in all specifications, indicating that firms' output moves parallel with a number of workers engaged in firms' production process. However, our results demonstrate a positive yet insignificant effect of workers' education (ED_i) on the firm output. The insignificance of education may be justified that, in Pakistan, prevailing education does not fit properly into requirements of firms' production lines.

Moving further, unlike education, firms' workers' experience (EXP_i), holds a positive sign and is statistically significant. This signifies the role of workers' experience in firms' output performance. Our results demonstrate that market-related facilities (MRF_i) (i.e. basic material preparation and costs, improvement, basis offices, endowed work, external matters) enter in all specifications positively and significantly. The results illustrate that the availability of market-related facilities enhance firms' output performance. Our results are consistent with the findings of Moorthy et al. (2012); Kazemy et al. (2011) and Chittithaworn et al. (2011). Keh et al. (2007) came with the conclusion that firms' output performance is positively associated with market information.

Moreover, the Government associated services (GRF_i) (provision of loan, ease in loan, tax, subsidy, services' structure for workers) have the expected positive sign, yet is not statistically significant in all the models. The results exhibit a lower level of government facilities to small firms in Pakistan. This indication links our findings with existing studies on the subject in case of Pakistan, for instance, Hussain et al. (2010); Khalique et al. (2011); Haq et al. (2015) came with the same findings that, the government of Pakistan fails to allocate enough resources for the development of small-scale production units. Lastly, the reliability of empirical results are demonstrated owing to the results of performance criteria and diagnostic tests in all nine cases.

5. Conclusion

This study explored how workers' social capital attributes affect firms' output performance. As social capital covers three different forms (i.e. Social Participation, Social Trust, and Social Network) and each has their own attributes,

hence we thoroughly investigated it in nine different specifications. The empirical evidence shows that at large workers' social capital attributes have a positive effect on firms' output performance. The indications are based on the evidence that in six out of nine specifications, the social capital attribute of workers enters the model significantly and positively.

Observing the results carefully, two out of three social participation factors enters the model positively and significantly. In the same way, the social participation index holds a positive sign that is statistically significant. The result point toward the fact that firms' output performance improves with the rise in workers' social participation attributes. Similarly, two out of three social trust factors enter the model positively and significantly. Nevertheless, contrary to the social participation index, the social trust index holds a negative sign that is statistically significant. The result point towards the statement that a certain level of trust may prove beneficial for facilitating the exchange of unstated learning and hazard taking, however, firms that exceedingly trust other firms might be misguided in both input and output decisions, which pose a negative impact on its output performance. Finally, the third factor of social capital (social interaction and networking) signify its positive effect on firms' output performance; pointing towards the fact that the firm can get greater benefits in the form of output sale if its workers retain more social interaction and networking.

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