IMPACT OF SOCIAL CAPITAL ON PERFORMANCE OF INFORMAL SECTOR FIRMS: EMPIRICAL STUDY USING INDIAN FIRM DATA

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Received: March 2024
Revised: May 2024
Accepted: May 2024

Abstract

Informal sector enterprises are the businesses that do not registered under the government and therefore not entitled for taxations. Social capital refers to the human networks and relationships people often maintain on their development. Three main types of informal businesses considered in this study are manufacturing, reselling and provision of services. They play a significant role in contributing to the global economy especially in developing countries. The study aimed to examine the impact of social capital on informal businesses. The study further explores the mediating effects of Covid pandemic and female ownership on the informal business performance. Secondary data for the study was obtained from World Bank Enterprise Survey website and the dataset was selected in the Indian context as India is one of the leading countries in South Asia where informal businesses have closer proportion of national economy. Dependent variable, informal business performance was measured in terms of profit and total sales, whereas the independent variable, social capital was measured using a self-developed scale by the author. Multiple regression, instrumental variable regression and censored regression (tobit) models have been used in analysis. The STATA version 11.1 is used as the statistical tool. The regression results show a strong positive relationship among the social capital and informal business performance, while the mediating effect of the global pandemic and female ownership on informal business performance were not significant.

Keywords: Business Performance, Informal Business, Instrumental Variable Regression, Multiple Regression, Social Capital

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1. Introduction

1.1 Background study

Social Capital refers to the relationships of people that are used for their development in various aspects. These relationships are often complex in nature and for the convenience of measurement and analytics, three dimensions of social capital have been identified as structural, Cognitive and Relational. (Nahapiet and Ghoshal, 1998). Structural social capital refers to the connections and patterns of social capital within a social network and can be considered as the tying layer that holds the network together and provide access for the exchange of expertise. Structural component consists of several components such as density, connectivity, hierarchy and ability of appropriating of the networks. Cognitive and relational dimensions are somewhat similar but distinct from the structural. Cognitive social capital is all about shared understandings such as values, attitudes, beliefs, norms, shared goals, purpose and vision. Relational social capital focuses on the quality and the nature of the relationships which is more alike with the cognitive dimension as this deals with the human cognition, feelings and thoughts. Quality and the nature of relationships includes the trust and trustworthiness, obligations and expectations. Structural dimension is tangible and clearly observed while other two are intangible in nature as those two deals with how people think and feel.

Informal sector or informal economy consist of number of economic activities that lies outside the boundaries of the formal economy which is closely monitored and well regulated by the respective governments. Such activities are not protected by the government, not entitles for tax payment, not registered under any state organization and not governed by any kind of law. There are both pros and cons of being in the informal sector for a firm. There are large number of economic activities that comes under the informal sector such as manufacturing, reselling and provision of services and domestic workers, home-based workers (manufacturing and retailing), street vendors, waste pickers etc. Most of the informal sector activities are small in nature and now have become significant portion of the nation gross domestic product especially in developing countries. It contributes to economic growth by providing employment and reducing poverty rates. Majority of informal workers are not well skilled to work in a formal organization and therefore they make use of this informal platforms to make their lives better. Entrepreneurs are having a chance to own a business by approaching for an informal business. Some of the informal business are tightly attached with traditional skills and those would be preserved with the existence. Going beyond that informal businesses are having some critical issues which kept them small scale for a long period of time. Most of the informal businesses are having less access to formal financial services like loans. Therefore, they do not have enough money to expand or grow their business further. Regulatory constraints limit them operating legally, hence, sometime the society see informal businesses as illegal businesses due to their less legitimate status.

Social capital plays an important role in informal businesses as relationships and networks of humans are significant resources they have. Such relationships may open them the information on new customers, market opportunities, new technologies etc. In addition, such networks and relationships help them in credit and other material requirements including tools and equipment. Mutual trust and reciprocity

facilitate them the cooperation which would reduce the cost and minimize the need for the formal businesses. Social networks help informal businesses to get assisted from peers during their hard times. This assistance is immediate and reliable than the formal sector. Social networks always sets a platform to share ideas and learn from each and every one, which is important in informal business contexts as such ideas can be ended up in another successful business.

1.2 Research gap

About a third of economic activity in low- and middle-income nations still occurs in the informal sector (International Monetary Fund, 2024). The informal sector is a significant contributor to the global economy, as it accounts for a substantial portion of employment and output, especially in developing countries. Social capital that refers to the networks of relationships among people who live and work in a society, plays a crucial role in supporting informal businesses. However, the specific mechanisms through which social capital impacts informal business performance in terms of total sales and profit remain relatively understudied, and we hope to address this research gap with this study. In addition to that, this study consist of two sub objectives; Explore the mediating effect of social capital and Covid pandemic towards the performance (in terms of profit and total sales) of informal businesses and to explore the impact of female ownership towards the performance of informal business performance (in terms of profit and total sales).

1.4 Research objectives

Research Objectives of the study are as follows:

- To investigate the impact of social capital on business performance in terms of total sales and profit in informal businesses
- To explore whether there is a mediating effect of Covid pandemic towards the informal business impacts on performance in terms of profit and total sales
- To explore whether there is a mediating effect of female-owned businesses towards the informal business impacts on performance in terms of profit and total sales

2. Literature Review

Social capital

Social capital refers to the relationships people are having with each other. Theoretically social capital is a broad area and simply can be summed up to two words; relationships matters (Field, 2008). People need relationships to get something done that could not done himself alone or without greater effort. A clear theoretical framework for social capital was introduced by Coleman (1988) and Coleman (1994). Coleman describes social capital as “the structure of relations between actors and among actors” that would encourages productive activities. The central idea of social capital is that networks and the associated norms of reciprocity have value (Putnam, 2001). Social capital facilitates the co-operation as it reduces the cost of working together and trust makes the co-operation easy (Pretty and Ward, 2001). Enhancement of social capital is the key to improving the quality of life in low-

income neighbourhoods (Lang and Hornburg, 1998). Social capital has two components as internal and external. Internal social capital refers to the relationships and bonds they maintain with the people from the same group where they belong and external social capital refers to the relationship which they maintain with rest of the people who does not belongs to the group where he belongs. A company's social capital may have significant effects on its ability to succeed as their relationships with other stakeholders are high when internal social capital and external capital are high. Social capital can be measured and analysed at individual and collective levels in terms of social perspective (Bhandari and Yasunobu, 2009).

Informal business

Informal or grey economy includes any activity that does not belongs to the legal framework (Garcia-Bolivar, 2006). When Economists are calculating the Gross Domestic Product of the country, they do not include the activities taken place under this informal economy. Hence, these are kind of hidden activities conducted in the underground level without being caught for government authorities. It is very difficult for governments to measure and monitor the spread of informal economic activities since the scope is broad and each of these activities are not directly observable. Informal businesses are important drivers in economic growth and usually do not survive in their first year of existence (Fredrika, 2019). Informal activities do not refer only to criminal activities. Some economic activities that do not have a criminal intention still come under informal activities due to their absence in the legal framework formulated by the authorities. Some typical informal activities may include unregistered businesses, self-employed manufacturers, temporary street vendors and casual retailers (Garcia-Bolivar, 2006). Informal businesses are usually small in size, and therefore, could not attend for economies of scale and could not operate with the right capital/labour mix (Ferreira-Tiryaki, 2008). There is a worldwide growth in the numbers of people working in the informal economy: either as self-employed in unregistered enterprises or as wage workers in unprotected jobs. Informal enterprises face more challenges than formal ones in business development and most of such enterprises are run by women (Jhabvala and Nanavaty, 2003). Informal sector in India has been exceptionally persistent over the past two decades (Ghani et.al, 2013). Stifling bureaucratic interference and corruption at every stage of economic activities in India is one of the main reasons behind high participation in informal and unregulated sectors (Kar and Roy, 2011). Unorganized nonfarm sector accounts for 43.2% of NDP and employs 71.6% of the total Indian workforce (Mukim, 2011).

Impact of social capital towards business performance

Irrespective of whether formal or informal, social capital influences the small medium enterprises performance (Dar and Mishra, 2020). Social capital is kind of a strength of the owner that facilitates the initiation of businesses. Social capital enables business creation with varying levels of impact (Thai, 2020). Social capital does not end its role there. It serve as an informal governance mechanism and can be a substitution for formal governance mechanisms in an emerging market (Cao, 2014). Since informal businesses are not open for formal financial matters, they facilitate

their financial requirements within them. Social capital plays a significant role in that procedure as well. It has made it easier for them to entitle for loans. Borrower's social capital creates value in the informal financial markets (Li, 2023).

3. Data and Methodology

3.1 Data

The World Bank Enterprise Survey (WBES) is a global initiative that collects and disseminates firm level data across around 155 countries throughout the world. They use standardized surveys to collect data that are distributed to a representative sample of firms in each country. These surveys cover number of different environment topics such as access to finance, corruption, infrastructure, competition and performance measures. Data collection is centralized within the enterprise analysis unit which consist from economists and firm level survey experts who conduct surveys and utilize those for the purpose of micro level researches.

Data set that was utilized for this study was collected by the World Bank Group's Enterprise Analysis Unit covering informal businesses in several cities of India between September 2021 and April 2022. They had defined the informality as the businesses which are not legally registered with the government, therefore excluded from taxation. This varies with country to country. In India, a business is considered as informal if it does not hold a business PAN number or GST number. Therefore, population for this study was all the informal business owners according to the above criteria in all the nine cities; Hyderabad, Telangana; Jaipur, Rajasthan; Kochi, Kerala; Ludhiana, Punjab; Mumbai, Maharashtra; Sehore, Madhya Pradesh; Surat, Gujarat; Tezpur, Assam; and Varanasi, Uttar Pradesh. Population excluded any illicit or illegal activities. Lack of a proper sampling frame due to the absence of those businesses from registries was a challenge in selecting the sample, and therefore, they had gone for area-based sampling methodology. Nine cities were divided into squares in equal sizes (150 meters by 150 meters) with the help of a software and one of such is referred to as a block. Then adaptive cluster sampling was used by randomly selecting the initial sampled block from the city's grid. Then the each sampled block was thoroughly enumerated for all informal businesses located in the block. Finally randomly selected subset of the available enumerated businesses was interviewed through a questionnaire that was designed for 25 minutes. Data set consist of comprehensive firm level economic data for around ten thousand six hundred (10,600) unique observations.

3.2 Methodology

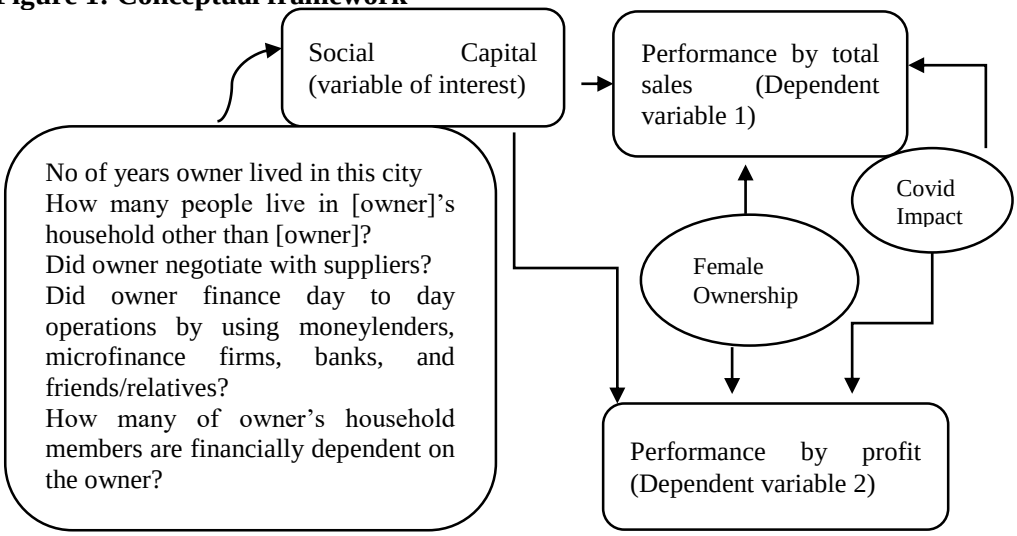
Multiple regression was used for the purpose of identification of the impact from social capital towards the informal business performance. Social capital was the variable of interest and other independent variables that may affect for the dependent variable were included as control variables. This was done with the intention of obtaining more precise values for the estimates. Instrumental variable regression has been used in order to address the problem of endogeneity (variable of interest, having correlations with other unobserved variables that are placed under the error term). The variable named 'Business_location_is_house' was considered as the

instrumental variable for the variable of interest and conducted the regression. Censored regression model (tobit) was used in certain instances where values had been scattered around particular value.

STATA 11.1 Statistical software was used as the estimation tool and numeric observations were directly inserted into the software while strings values were inserted after coding them into a numeric value. When converting into a numeric value, it was ensured that no bias comes from the numeric value that assigned. All the numeric values to be assigned were chosen in a way that total value of all equals to one.

3.2.1 Conceptual framework

Figure 1: Conceptual framework



Variable of interest; social capital, was measured using an author-developed scale by using selected question items from the questionnaire. Dependent variable; informal business performance was measured in two aspects as from total sales and from profit.

3.2.2 Data cleaning and variable declaration

Data cleaning

There was various type of responses for each of above questions in the data set and in order to make them usable with STATA, data cleaning was conducted. New variables for each of above question were generated in STATA according to the requirement of the study, considering the responses for each question on the data set. All the new variables were generated assigning its initializing value as zero to make it easier to get the responses that required for the study excluding other irrelevant responses.

Variable declaration

Social Capital (declared as 'avgvalueforsocialcapital') is the variable of interest and performance (that is the dependent variable of the informal businesses which is measured in terms of two aspects as total sales ('totsales') and profit ('profit'). Variable on business location; whether owner use house as the business location ('buslochouse') was used as an instrumental variable for social capital and all other variables are control variables which were used with the intention of controlling the effect from those variables towards the research objective. Following table emphasizes the variable declaration.

Table 1: variable declaration

Number	Description	Variable	Variable Type
1	Average value for social capital measured by the scale	avgvalueforsocialcapital	Float
2	Total sales in a regular month	totsales	Float
3	Made profit during last completed month?	profit	Byte
4	Name of the city	citynew	Float
5	Owners age	ownage	Float
6	Owner's years of experience working in this activity	ownexp	Float
7	Owner's highest level of completed education?	ownedu	Float
8	Type of activity	acttype	Float
9	Is the owner a female?	owngenfemale	Byte
10	Year did this business started	busistartyr	Float
11	main source of money to [start] this business	moneysource	Float
12	Owner's previous occupation	ownpriorbusi	Float
13	Hours per day does owner spend on domestic tasks or family care activities?	hrsfornonbusiscti	Float
14	Does this business or activity keep written accounts?	keepwritacc	Byte
15	Did this business experienced harassment by government officials or police?	harassment	Byte
16	Does this business have to give gifts, informal payments or bribes to continue operating?	bribes	Byte
17	Number of people works in this business	noofemp	Float
18	Does this business pay any fee or rent for the location or space it occupies?	costforloc	Byte
19	Does house is the business location?	buslochouse	Byte

Source: Authors definition based on WBES data

3.2.3 Scale creation and variable measurement of key variables

Measurement of variable of interest – social capital

Since social capital variable could not measure directly, it was needed to create a scale to measure it by the question items from the questionnaire. Relevant questions were identified and average value for social capital was calculated using below equation.

Table 2: Measurement scale development for social capital

Question Code	Question Item	Weight
B.12	For how many years [has] the [owner] lived in this city?	125/1000
B.14	How many people live in [owner]'s household other than [owner]?	250/1000
IR.2	In the last three months, has this business or activity attempted to negotiate with a supplier for a lower price?	175/1000
K K4	In the last year, did this business or activity finance its day–to-day operations by using:	300/1000
K4a	Moneylenders	
K4b	Microfinance institutions, or Non-bank Financial Companies	
K4c	Banks	
K4d	Friends or relatives	
Msc.1	How many of [owner]'s household members are financially dependent on the [owner]?	150/1000

Source: Authors calculation based on WBES data

$$\text{Average value for social capital} = (125V1 + 250V2 + 175V3 + 300V4 + 150V5)/1000$$

More weight was assigned to the question (K K4) where interaction of different stakeholders is high as it indicates high involvement of social capital. Second highest weight assigned to the question (B.14) as when number of households live in owner's house increased, automatically owner is exposed to a high possible number of direct interactions of his households. Third highest weight assigned based on owners social capital interactions through negotiations. Likewise, all weights were assigned according to its importance towards the social capital.

Measurements of the sub question items

Measurement of the Question item 1 – B12 of Social Capital

For the question B.12, there were responses from a range of 1 to 65 numeric responses with several other string responses as don't know, doesn't live in this city and entire life. Relevant string responses were inserted into STATA using a separate coding system as STATA does not recognize string values. Since it was important for the study to consider the people who have spent their entire life at this city and from 1 to 65 years other people have spent in this city, those were taken into consideration according to the below subscale.

Table 3:Variable measurement 1

Range	Value Assigned

1<=years<=10	0.05
11<= years <=30	0.1
31<= years <=60	0.15
61<= years <=65	0.2
Entire life	0.5

Source: Authors calculation based on WBES data

Several range of years were created and values were assigned in a way that it gets the maximum value when number of years spent in this city is maximized. Summation of the values assigned was kept equals to one (1) in order to remove the biasedness causes when assigning weights to this question item.

Due to the reason that new variable was generated with an initializing value as zero, it only takes values as 0.05, 0.1, 0.15, 0.20 and 0.5 for the relevant responses as per the commands. All other responses which are not significant for this study will remain as zero.

Measurement of the Question item 2 – B14 of Social Capital

Similarly the responses were categorized according to a subscale as below and the new variable; second was generated in STATA with those values assigned excluding the irrelevant responses. Highest value was assigned when the number of household members are high.

Table 4: Variable measurement 2

Numeric Coding	Range	Value Assigned
-	1<=no of household<=10	0.2
-	11<= no of household <=30	0.3
-	31<= no of household <=60	0.5
100	Don't know	0

Source: Authors calculation

Measurement of the Question item 3 – IR2 of Social Capital

Since there were only string responses it was needed to convert those to a numeric value to a coding system and then only "yes" responses were considered as if negotiations are taken with suppliers, it has an impact towards the objectives of the study.

Table 5: Variable measurement 3

Numeric value code	Response	Value Assigned
350	Yes	1
400	No	0
100	Don't know	0
300	Not Applicable	0

Source: Authors calculation based on WBES data

Similarly, the new variable; third was generated considering ones (1s) and kept all other responses as zero.

Measurement of the Question item 4 – K4 of Social Capital

All four sub question items of k4 were treated similarly. Additional coding had to be done as all responses were in strings. Value 1 was assigned as any of the interaction with environment has an impact towards the research objectives.

Table 6: Variable measurement 4

Sub question item	Response	Numeric value code	New variable generated	Value Assigned
k4b	Yes/No	350/400	fourth	1/0
k4c	Yes/No	350/400	fifth	1/0
k4d	Yes/No	350/400	sixth	1/0
k4e	Yes/No	350/400	seventh	1/0

Source: Authors calculation based on WBES data

Measurement of the Question item 5 – Msc1 of Social Capital

Numeric response were assigned values in the way that value is high when the number of households that depends financially on owner is high. New variable eighth was generated with zero and only numeric values were assigned values and remaining zero for other responses.

Table 7: Variable measurement 5

Numeric Code	Range	Value Assigned
-	1<=no of household financially depend<=10	0.4
-	11<= no of household financially depend <=20	0.6
100	Don't Know	0
250	Blanks	0

Source: Authors calculation based on WBES data

Measurement of dependent variable

Measurement of Dependent Variable – Performance in terms of total sales

Performance; dependent variable for this study was measured in terms of profit and total sales of the informal businesses and total sales data were directly taken from the data set as those were numeric values.

Measurement of Dependent Variable Performance in terms of Profit

Since there were only string responses, additional cording had to be done to convert those into numeric values. Then the new variable; tenth was generated initializing with zero and only "profit" responses were replaced to one while other responses remain as zero.

Table 8: Dependent variable (profit) measurement

Numeric Code	Response	Value Assigned
450	Profit	1

500	Loss	0
550	Zero Profit	0
100	Don't know	0
250	Blanks	0

Source: Authors calculation based on WBES data

Due to the fact that authors try to identify whether there is an impact of social capital on profit, only responses that were made as profit were converted into numeric value 1. Other responses were assigned to zero as those does not create impact on the research objectives.

Measurement of instrumental variable

Variable of interest may have correlated with other variables which are not included in the model. In other words, it may correlate with the factors included in the unobserved factors or there can be more variables in the unobserved sector which affects both the dependent variable and the variable of interest.

Such issues lead to endogenity problem and can be overcome by employing an instrumental variable (Z) that satisfies below conditions. Such an instrumental variable could control the confounding effects of endogenous variables and omitted variables.

Cov (Z, U) = 0

Cov (Z, Variable of interest) $\neq 0$

First condition cannot be satisfied in real life estimations as we could not consider all the unobserved factors in a study. Therefore, that condition can be checked by replacing the unobserved factors by the dependent variable on the same condition itself. (Cov (Z,Y)=0) Second condition can be checked by running a regression using the variable of interest as the dependent variable and the instrumental variable as the independent variable. If those result is significant, we can conclude that there is a correlation between those two variables.

In the study, business location of household is same as the house they reside ('buslochouse') was used as an instrumental variable as it satisfies above two conditions. When the business location is the house, all household members' relationships and networks can be effectively used for the success of the business. Therefore there is a correlation with instrumental variable and variable of interest. On the other hand, business-location-is-household does not have direct correlation on its total sales or profit (business performance measures). Therefore, instrumental variable does not correlate with the dependent variable.

Table 9: Measurement of instrumental variable

Numeric code to insert stata	Response	Stata Coding (buslochouse=0)

200	Household	1
300	Non fixed-premises including hawkers	0
500	Non household with permanent structure	0
600	Non household with temporary structure	0

Source: Authors calculation based on WBES data

3.2.4 Regression analysis

Regression equation can be written as follows with n independent variables (control variables) as X1, X2, X3… Xn and Y as dependent variable. X is the variable of interest of the study which is also comes under independent variables.

$$Y = \beta 0 + \beta 1X + \beta 2X1 + \ldots + \beta n\, Xn + \varepsilon \text{ ------ (1)}$$

β0 is the value of dependent variable when all other explanatory variables are zero and ε depicts the residuals. β1, β2, β3…, βn are the estimated regression coefficients that represents the change of the dependent variable y with respect to the one unit change of particular independent variable.

According to this study, dependent variable Y is the informal business performance (measured in terms of total sales and profit) and the variable of interest, X is the social capital (measured from the variable of 'avgvalueforsocialcapital'). Other control variables for the study are city, owner's age, owners years of experience, highest education level of the owner, type of the activity, gender of the owner, started year, main source of income to start the business, owners occupation prior to this, non-business hours per day, keeping written accounts or not, harassments, bribes, cost for location, number of employees.

Two regressions were mainly used as follows:

Profit = β0 + β1 avgvalueforsocialcapital + other control variabes + ε ---- (2)

profit = β0+ β1 avgvalueforsocialcapital+ β2 citynew + β3 ownage + β4 ownexp+ β5 ownedu + β6 acttype + β7 owngenfemale + β8 busistartyr + β9 moneysource + β10 ownpriorbusi + β11 hrsfornonbusiscti + β12 keepwritacc + β13 harassment + β14 bribes + β15 noofeemp + β16 costforloc + ε

Total Sales = β0 + β1 avgvalueforsocialcapital + other control variabes + ε ----- (3)

lntotsales = β0+ β1 lnavgvalueforsocialcapital+ β2 citynew + β3 ownage + β4 ownexp+ β5 ownedu + β6 acttype + β7 owngenfemale + β8 busistartyr + β9 moneysource + β10 ownpriorbusi + β11 hrsfornonbusiscti + β12 keepwritacc + β13 harassment + β14 bribes + β15 noofeemp + β16 costforloc + ε

There were lots of zero values for the dependent variable; total sales within the dataset and therefore those data were censored around zero. In order to address that issue, censored regression model (Tobit model) was used for this regression. That model can provide more accurate or precise results than the traditional multiple regression.

Data points for dependent variable; total sales are spread out in a range of 0 to 10,000,000 and it means that a small change in the independent variable ('avgvalueforsocialcapital') could have a very large change in the dependent variable. Therefore, taking log values of the dependent variable would help to compress the range of the data and to make the relationship between dependent and variable of

interest, more linear. Data points for the variable of interest; average value for social capital ('avgvalueforsocialcapital') are dispersed within a range of 0 to 0.1295. This suggests that the data could be skewed towards lower values. Taking the log value of variable of interest would normalize the distribution of the data.

3.2.5 Instrumental variable regression

In order to identify whether there is endogeneity between variables, test for endogeneity was performed.

H_0 – Variables are exogenous
H_1 – Variables are endogenous

Table 10: Test result of endogeneity

	P value
Robust score chi2(1) = 6.95188	0.0084
Robust regression (1, 10653) = 6.97019	0.0083

Source: Authors calculation based on WBES data

Since p- value < 0.05, it is concluded that there is enough evidence to reject H_0. That means there is an endogeneity issue that is to be addressed through an instrumental variable. Therefore it was concluded that we could not consider social capital as an exogenous variable according to the economic procedure of instrumental variable estimation. (Wooldridge, 2013). Therefore instrumental variable needs to be found and it is not that easy. Getting an appropriate instrumental variable is problematic due to the absence of precise modelling of IV selection. (Durlauf, 2002; Durlauf & Fafchamps, 2004). Selection of instrumental variable varies with the study but must be adhered to the both conditions stated above.

Business location is house ('busilochouse') is identified as an instrumental variable from the data set as it has a direct relationship with the variable of interest, social capital as when the business is conducted from home, all people of the household would take part in it and all the relationship of all households will be used for the betterment of the business but it does not has a direct relationship with the dependent variable of firm performance.

3.2.6 Testing the Covid impact

The data set has been collected during the covid pandemic had been widely spread around India and therefore the impact of pandemic on informal business performance in terms of total sales and profit is examined in this study.

Measurement of question item

Table 11: Measurement of variables of Covid

Question item	Responses	Values assigned for covid variable
Does the business suspend operation due to pandemic?	Yes	1
	No	0
Robust regression (1, 10653) = 6.97019	0.0083	

Source: Authors calculation based on WBES data

In order to check the pandemic impact towards the informal business performance, an interaction variable ('covsc') was created by interacting the social capital and covid variables.

Covsc = avgvalueforsocialcapital * covid ------ (4)

Then that variable was used in the regression equations and based on the results, it could be interpreted.

3.2.7 Testing the impact of female ownership towards performance

In order to test the impact, another interaction variable ('genf') was created interacting social capital and gender of the business is female variables.

genf = avgvalueforsocialcapital * owngenfemale ----- (5)

That variable was used in regression equations and based on the result, it could be interpreted.

4. Results and Discussion

4.1 Descriptive statistics

Table 12: Descriptive statistics

Variable	No of obs	Mean	Std. Dev	Min	Max
Avgvalueforsocialcapital	10672	0.0465	0.0263	0	0.1295
Totsales	10672	27427.62	113467.1	0	1.00e+07
Profit	10672	0.3883	0.4874	0	1
Citynew	10672	0.1221	0.0149	0.1	0.2
Ownage	10672	0.2853	0.0608	0	0.5
Ownexp	10672	0.1801	0.0695	0	0.5
Ownedu	10672	0.1135	0.0639	0	0.28
Acttype	10672	0.4350	0.1060	0.2	0.5
Owngenfemale	10672	0.0923	0.2895	0	1
Busistartyr	10672	0.4013	0.132	0	0.5
Moneysource	10672	0.0895	0.0875	0	0.3
Ownpriorbusi	10672	0.18095	0.10395	0	0.3
Hrsfornonbusiscti	10672	0.1399	0.2237	0	0.6
Keepwritacc	10672	0.34079	0.474	0	1
Harassment	10672	0.16145	0.3679	0	1
Bribes	10672	0.1866	0.3897	0	1
Noofemp	10672	0.1295	0.096	0	0.5
Costforloc	10672	0.2402	0.4272	0	1
Buslochouse	10672	0.14055	0.3476	0	1

Source: Authors calculation based on WBES data

4.2 Estimation results

4.2.1 OLS regression

1) Profit as dependent variable

OLS and IV regressions run in terms of profit is compared as follows. Model 1 depicts OLS regression while model 2 depicts Instrumental Variable Regression.

Figure 2: OLS and IV model comparison in terms of profit

	(1) profit	(2) profit
avgvaluefo~l	3.370***	13.17**
	(0.202)	(4.234)

Notes: Standard errors are in parenthesis
*Depicts the significance of the variables
*Significant at the level of 0.05 significant level
**Significant at the level of 0.01 significant level
***Significant at the level of 0.001 significant level

In both models, we have obtained statistically significant positive coefficient values for social capital and therefore, we can conclude that there is a positive relationship between social capital and informal business performance in terms of profit. Instrumental regression model has strong relationship between social capital and performance in terms of profit.

2) Total sales as dependent variable

Model 1 depicts the OLS model while model 2 depicts the Censored (Tobit) model.

Figure 3: OLS and censored regression model comparison in terms of total sales

	(1) lntotsales	(2) lntotsales
main		
lnavgvalue~l	0.811***	1.258***
	(0.0766)	(0.112)

Tobit regression model had been used for this regression as there were lots of zero values for the dependent variable; total sales within the dataset and therefore those data were censored around zero. The result shows that there is a statistically significant positive relationship between performance in terms of total sales and social capital.

This result can be justified referring to previous literature as follows. There exist a positive and significant influence of internal and external social capital on the business performance in Nigerian context (Olamide and Ogbechie, 2021). Entrepreneurs are having a higher tendency of becoming informal business owners and it is found that social capital of entrepreneurs facilitates small business productivity (Clarke and Jha 2022).

This provides evidence that people use their relations and networks in order to make their businesses successful. Even though they are operating with a very limited customer base, by utilizing the networks and relationships they have been able to exist in market.

Social capital ('avgvalueforsocialcapital') holds positive statistically significant coefficient values in both models, and therefore, we can conclude that there is a positive relationship between social capital and informal business performance in terms of total sales.

4.2.2. Instrumental variable regression results

Validity test for the instrument is shown in Table 13.

Table 13: Validity result for instrument variable

avgvalueforsocialcapital	coefficient	Robust Std. error	T	P-Value
busilochouse	0.0039232	0.0006362	6.17	0.000

Results depicts that there is a positive relationship between the business location and average value for social capital which is statistically significant at 95% level of confidence. Therefore the instrument variable satisfies the second condition. There is no direct relationship between the business location and the profit. Therefore we can conclude that house as the business location ('busilochouse') is an appropriate variable to be used in this study.

4.2.4 Impact of Covid pandemic

OLS models for two regressions are considered for the comparison.

Figure 4 : Model comparison for Covid impact

	(1) profit	(2) totsales
covsc	**0.249**	**36340.7**
	(0.425)	**(53758.4)**

Notes: Standard errors are in parenthesis
*Depicts the significance of the variables
*Significant at the level of 0.05 significant level
**Significant at the level of 0.01 significant level
***Significant at the level of 0.001 significant level

Covid variable and social capital interaction variable ('covsc') is statistically insignificant for both profit and total sales. Therefore, we can conclude that there is no mediating impact from covid towards the performance in terms of Profit and Total sales of the informal businesses. In other words, pandemic has not much related with social capital formation which affect outcome variables.

4.2.5 Impact of female ownership towards performance

Figure 5: Comparison for impact of female ownership

	(1) profit	(2) lntotsales
owngenfemale	−0.0501	0
	(0.0325)	(.)

Notes: Standard errors are in parenthesis
*Depicts the significance of the variables
*Significant at the level of 0.05 significant level
**Significant at the level of 0.01 significant level
***Significant at the level of 0.001 significant level

According to results in Figure 5, Female ownership does not have a significant mediating impact on business performance in terms of total sales because coefficient is statistically insignificant.

4.3 Robustness check

4.3.1 Robustness check for performance in terms of profit

Five models are considered and compared in a way that number of control variables are increased as the model number is increased. Social capital ('avgvalueforsocialcapital') holds statistically significant values across all different five specifications, and therefore, it can be concluded that significance of social capital ('avgvalueforsocialcapital') is robust.

Figure 6: Robustness check for profit in terms of profit

	(1) profit	(2) profit	(3) profit	(4) profit	(5) profit
avgvaluefo~l	3.125***	3.325***	3.347***	3.306***	3.370***
	(0.176)	(0.178)	(0.180)	(0.189)	(0.202)

Notes: Standard errors are in parenthesis
*Depicts the significance of the variables
*Significant at the level of 0.05 significant level
**Significant at the level of 0.01 significant level
***Significant at the level of 0.001 significant level

4.3.2 Robustness check for performance in terms of total sales

Five models have been compared in a way that number of control variables are increased as the model number is increased for the robustness of the log value of social capital ('lnavgvalueforsocialcapital'). It was statistically significant across all five different specifications, and therefore, it can be concluded that the significance of log value of social capital is robust.

Figure 7: Robustness check for performance in terms of total sales

	(1) lntotsales	(2) lntotsales	(3) lntotsales	(4) lntotsales	(5) lntotsales
model					
lnavgvalue~l	1.193***	0.936***	0.902***	0.439***	1.258***
	(0.120)	(0.114)	(0.114)	(0.117)	(0.112)

Notes: Standard errors are in parenthesis
*Depicts the significance of the variables
*Significant at the level of 0.05 significant level
**Significant at the level of 0.01 significant level
***Significant at the level of 0.001 significant level

4.3.3 Robustness check for the instrumental variable regression of profit

Four models are considered in a way that number of control variables are increased when the model number increases. In all four scenarios, social capital hold statistically significant values and therefore it can be concluded that relationship between social capital and firm performance is robust.

Figure 8: Robustness check for the instrumental variable regression of Profit

	(1) profit	(2) profit	(3) profit	(4) profit
avgvaluefo~l	11.68***	16.63***	14.78***	13.17**
	(3.398)	(4.680)	(3.690)	(4.234)

Notes: Standard errors are in parenthesis
*Depicts the significance of the variables
*Significant at the level of 0.05 significant level
**Significant at the level of 0.01 significant level
***Significant at the level of 0.001 significant level

5. Conclusion and Recommendation

Social capital is having a positive impact on informal business performance in terms of both total sales and profit. Pandemic had not significantly decreased the business performance and female ownership also did not significantly affected the business performance in terms of total sales and profit. Study on Sri Lankan context also emphasize that their social capital in different levels has been advantageous for better performance.

According to the results of the study, informal business owners need to focus on building up relationships and networks with humans as it directly affected for the performance of the business. It is easy for them to be connected since they are operating in a limited environment than formal businesses. Due to that fact that no any authority is monitoring informal businesses, owner and associates have to carefully look after themselves in terms of performance. Being more conscious on additional social capital would result them the performance excellence.

Covid pandemic had not impacted significantly towards the performance of informal businesses. This is a crucial result which emphasizes the consistency of the informal sector enterprises. Almost all the sectors of businesses were badly affected by the pandemic while informal businesses managed their existence with considerable measures of performance. Even though business environment changed drastically, it had not affected the informal businesses due to their steadiness and that could be the reason why people tend to build up and operate informal enterprises.

Rational people may tend to believe that male ownership of a business would have the highest possibility of being successful. But the results conclude that there is no such fact as the female ownership of business does not significantly impact in performance enhancements. Therefore, gender is not the fact that decides the success of an informal business and according to the study, it could be the social capital which is the main finding of the study.

Findings of the study may be helpful for the policy makers, economic researchers and other stakeholders. This can be considered as an initiation for further studies. This results are important for government as well because they always try to demotivate the potential people that would engage with informal economy. Government needs to thoroughly identify the characteristics that would affect the informal business performance, and this results would facilitate them. People with short term financial goals are more likely to engage with the informal enterprises and these findings would helpful for them as well.

As it is evident that social capital having a positive impact towards informal business performance, social capital can be promoted to enhance informal business performance. This can be put into action by providing support for community organizations, providing training and awareness sessions on human networking and collaboration and their importance, and by setting platforms for informal businesses where they can get connected to each other more easily.

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