The Influence of Social Capital on the Performance of Small Scale Agro-food Processing Enterprises in Tanzania

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Abstract

Social capital is increasingly being acknowledged as one of the most important sources of competitive advantage in agro-food processing businesses, particularly small and medium-sized enterprises. Social capital, as measured by each processor's network of processing contacts, has become a missing piece in the development of small firms. Despite the fact that processors invest in contacts in faraway markets as well as regular local trading partners, only around a third of networks are based on ethnicity. This study looks at how social capital affects the performance of geographically concentrated and dispersed small agro food processing businesses in Tanzania's Dodoma and Singida regions. The study's hypothesis was that social capital (measured by membership in a business association and trust) contributes considerably to firm performance in both geographically concentrated and dispersed enterprises. Primary data were collected from 134 small agro processing firms. Secondary data were collected from Sokoine National Agricultural Library (SNAL), District councils, SIDO, Ministry of Industry and Trade, Ministry of agriculture and Tanzania Chamber of Commerce Industry and Agriculture (TCCIA). Stratified sampling methods were used because the sub-population varies considerably. Each stratum was sampled independently because stratification helped to enhance the representativeness of the sample. In sampling, few enterprises from each stratum were randomly selected to form the investigative sample. In this case, examination of parameters for each sub-domain within the population can be obtained separately. The paper provides an in-depth analysis on the aspects concerning social capital. Data were collected using structured questionnaire. Three criteria were used to choose the study areas. Including a) the number of firms in the study area; b) the sort of technology used by the firms in the location and c) firms with similar products. Different methodologies, such as descriptive statistics, multivariate regression, and log linear regression, were used to analyze the data. The findings show that social capital boosts firm's performance and that it may be combined with other factors to boost firm performance even more. Therefore the study concludes that that social capital can be considered a crucial production component that determines firm's performance within the agro-industrial development. Second, the interaction of human capital, expertise, membership in trade associations, trust (social capital), and enhanced equipment improves production and marketing capacity, resulting in increased productivity of high quality processed products that meet industry standards. It is further recommended that social interaction and networking be strengthened in order to enhance effective forward and backward linkages in all levels of the agro processing value chain.

Keywords: Social capital, Agro- processing firms, Performance, Small scale

Introduction

In a country where agriculture is a key source of income, industrialization should place a greater emphasis on agro-processing, which allows the integration of farm and industry. Industrialization necessitates the establishment of agro-processing industries that utilize locally available agricultural raw resources. Tanzania, like many other developing countries, has long pushed value-added processing of primary

products as a means of industrialization. Agro-processing businesses play an important part in the economy, such as; providing jobs and income while also contributing to general growth. Agro processing not only boosts value addition, but also creates direct and indirect jobs, especially in rural areas where there is a surplus of labor (Olomide, 2019) Agro-food processing firms gain from social capital because it facilitates cooperation and coordination, lowering transaction costs such as negotiation and enforcement, imprecise information, and superfluous layers of bureaucracy. Small businesses are a major source of employment in Tanzania, accounting for more than 70% of the workforce; nevertheless, they only account for 1.5 percent of exports and around 17% of overall sales (UNIDO (2012). These data demonstrate both its relevance in the labour market and its poor productivity levels (URT, 2016).

While Tanzania has registered in significant progress in some economic perspective, the agro processing sub-sector still experience low performance (UNIDO, 2012). This is partly due to dependence on agricultural and mineral commodity exports which fetch low prices hence the need for value addition in agricultural crops and minerals. The broad objective of the agro processing value chain study is to generate comprehensive baseline information with focus placed on the secondary agro-food processing and upstream value added activities that depend on milk and milk products, grain and cereals, livestock, meat and meat products, vegetable oils products, beverages; and fruit juices, as well as processing of industrial crops such as cotton and sisal, timber and timber products (URT, 2015).

There have been several and counter claims about the potential of agro processing firms. Some literature argues that agro processing in Tanzania possess, on one hand while on the other hand the potentiality to create employment and generate income, agro processing cannot sustain employment creation rather tend to generate low income (Jenny, 2005);. It is also argued that agro processing is isolated and lack the potential to improve performance glued with trust. The capabilities of agro processing firms are seen to be weak and lack the likelihood to play their role in economic development and the ongoing globalization (Castagna *et al,* 2012).

The number of contributions focusing on social capital remains high in most of economic disciplines, including economic history, political economy, economics of health, economics of happiness, industrial organization, management, economic growth or game theory and other social sciences (Bahar, 2013). Such an academic interest, has led to substantial advances in knowledge of social capital, yet at the same time the great diversity of scholars that have attempted to tackle its research has generated some contentious, especially around the nature of the concept, its elements and its consideration as capital and how it might improve economic development among other issues (Andreas *et al.,* 2010).

According to Shuh *et al.* (2011) social capital, as measured by total lending and borrowing among related-party transactions, has a positive effect on a firm's value. Per and Benson (2003) reveal that only one aspect of social capital, being a member of a business network, had a positive statistical significant effect in entrepreneurial activities. Furthermore Andreas *et al,* (2010) come with the findings that the positive effects of network openness on cluster performance tend to increase as environmental uncertainty increases, while the positive effects of network strength on cluster performance tend to decrease as environmental uncertainty increases. Christine (2011) carried out enterprise related to different levels of social capital and found that the success of the enterprise is related to many aspects of the enterprise economic and managerial covering influenced by many layers of the external environment. Lobna (2013) identify the importance of social capital as a factor in achieving sustainable economic growth and development. Jenny (2005) found that household-level's social capital is associated with a percentage increase in household per capita expenditures, and that this finding is robust to a variety of specifications and instruments. Social capital acts as complements, that is, people acquire more education, and the usefulness of these associations and networks for household expenditures is increased. More interestingly, various studies conclude that household-level

social capital appears to be associated with a significant decrease in a household's probability of being poor, indicating that social capital could be a valid investment for the rural poor in Tanzania. Equally according to Shaoxia and Yongming (2017) social capital has positive effects on small and micro-manufacturing entrepreneurial behaviour. Nesrine (2020) evaluated the effect of social capital on the development of agritourist entrepreneurs. The results revealed that social capital helps in strengthening the social identity of agritourist entrepreneurs when launching their business.

All forms of capital involve the creation of assets by allocating resources that could be used up in immediate consumptions to create assets that generate a potential flow of benefits over a future time horizon. Capital in its most basic sense is a set of assets capable of generating future benefits for at least some individuals (Luka, 2006). Capital always involves multiple forms. Examples of physical capital include roads, irrigation systems, schools, factories and the machinery inside factories. Human capital includes many kinds of different forms of knowledge and personal skills. It is not surprising that multiple forms of social capital exist such as trustworthiness, networks and institutions. Social capital is viewed as an attribute of individuals and of their relationships that enhance their ability to solve collective action problems. According to Svendsen (2004) social capital is capital like any other capital which can be determined using a production function approach. It is possible that social capital can determine transaction cost. Both production function and the transaction cost approaches link social capital to the size of production.

Consequently, social capital is today one of the topics which generate most interests in social science (Yumkella *et al.,* 2011). Moreover, social capital has become a missing piece in the problem of development of small firms. Other factors beneficial for firm growth such as investment in both physical and human capital have been deeply studied and its role is well understood (URT, 2016). However, studies on social capital in firms is still relatively low in Africa therefore studies on the link to those other

more study factors is essential for development as other factors more deeply studied after the shift from an economy based on raw materials to knowledge based economy (Watson, 2012). The reason why it has been studied with more rigour only recently are perhaps its more sophisticated nature and measurement difficulties, but the drawbacks are precisely generated such an intense academic debate. According to Helpen, (2005) categorize six types of capital and that for social capital to be capital its economic effects must persist.

All types of capital entail the production of assets by allocating resources that could otherwise be consumed in immediate consumption to create assets that yield a prospective flow of benefits over a longer time horizon. In its most basic form, capital is a collection of assets that can provide future benefits to at least some people (Lachman, 1978). Multiple forms of capital are constantly present. Roads, irrigation systems, schools, factories, and the gear that runs them are all examples of physical capital. Human capital entails a wide range of knowledge and personal abilities. Trustworthiness, networks, and institutions are all examples of social capital. Individuals and their relationships are seen to have social capital, which improves their ability to solve challenges requiring collective action.

Consequently, social capital is today one of the topics which generate most interests in social science.(Yumkella *et al,* 2011) More particularly for most of scholars interested in economic development, social capital has become the missing piece in the problem of development of small firms. Other factors beneficial for firm growth such as investment in both physical and human capital have been deeply studied and its role is well understood (URT, 2019). However, studies on social capital in firms is still relatively low in Africa therefore studies on the link to those other more study factors is essential for development as other factors more deeply studied after the shift from an economy based on raw materials to knowledge based economy (Westlund, 2006). The reason why it has been studied with more rigour only recently are perhaps its more sophisticated nature and measurement difficulties, but those draw backs

are precisely those that have generated such an intense academic debate. Helpen (2005) categorized six types of capital and that for social capital to be capital; its economic effects must persist.

Research Methodology
Study Area

A survey of agro-food processors was carried out in the regions of Dodoma, Morogoro, and Singida. These regions were

Table 1: Forms of capital in relation to social capital

Type of capital	Definition
Capital (general use)	Any form of material wealth employed, or capable of being used, in the generation of new wealth; a company's or individuals remaining assets after all liabilities have been removed, net worth.
Financial capital	Money and paper assets; does not directly produce goods and services, but can be used to purchase factors of production which can produce goods and services
Physical capital	Stock of produced goods that contribute to the production of other goods and services
Other tangible assets	factors of production that nature supplies, for example land
Human capital	Stock of enterprise accumulated by a worker – knowing how to do something; it is valued for its income earning in the future
Social capital	Social networks and the norms and sanctions that govern their character; it is valued for its potential to facilitate individual and community action, especially through the solution of collective problems

Source: (Halpern, 2005)

Boosting social capital in agro processing firms shall result in reducing regional inequalities in Tanzania. Therefore a vibrant agro - processing is needed to ensure economic growth. Further the study focuses on the agro-processing industry because its development could reduce poverty through two main channels. The first channel is that the purchase of agricultural products by the agro processing industry increases the demand for agricultural products, which in turn improves farmers' income. The second channel is that agro-processing firms create employment to farmers.

Therefore, they can provide job opportunities to farm household members and also to farmers themselves in the non-farm activities.In these two channels social capital plays a vital role.

The hypothesis tested was that social capital (measured by membership in a business association and trust) contributes considerably to firm performance in both geographically concentrated and dispersed enterprises

specifically chosen to reflect different parts of the country where agro-food processing is a significant part of the economy. Two districts were chosen from Dodoma and Singida, and one district was chosen from Morogoro, as shown in Figure 1. From Dodoma region, Dodoma Urban and Kondoa districts were chosen for the collection of detailed data on individual agro-food processing firms because these districts have a significant presence of agro-food processing activities. Singida Urban and Iramba District in Singida region, as well as Morogoro Municipality in Morogoro region, was selected. Dodoma, Morogoro, and Singida Municipalities are regional headquarters, making them a suitable location for locating businesses due to excellent services. Rural areas with dispersed agro-food processing enterprises and large agricultural production activities that feed raw materials to agro food processing firms were chosen for Iramba and Kondoa Districts.

Due to the factors that enterprises are distributed, the majority of firms in rural areas of

Kondoa, Iramba Singida districts are dispersed, whilst those in urban areas in Municipalities are grouped. Firm kinds (based on the items they generate) and size were also utilized to examine network functioning, topologies, and participation in various organizations.

Figure 1: Map of Tanzania showing study regions and districts

Sampling Procedures

The target population consists of Agro-processing firms with fewer than 100 employees, as defined under Tanzanian SME classification. Before creating the sampling frame, some assumptions were evaluated. Because of the interests and classification of SME in Tanzania, which stipulate that small enterprises are mostly formalized undertakings employing between 5 and 49 employees or with capital investment ranging from TZS 5 million to TZS 200 million, firms with more than 100 workers are excluded from the sample frame (URT, 2003). The goal is to have industrial units with equal cost, investment, output, and employment structures. The second consideration is that a criterion must be used to limit the number of survey locations.

In this situation, four criteria were used to choose the study areas. The factors are: a) the number of firms in the cluster; b) the sort of technology used by the firms in the location; c) firms with similar products; and d) the network type. To examine the impact of clustering on company performance, the third premise is that enterprises must operate in a defined geographical area.

Small sunflower oil processing firms in central Tanzania have been identified as part of a cluster strategy. Because the sub-population fluctuates so much, stratified sampling methods were used. As stratification improved the sample's representativeness, each stratum was sampled separately. The investigating sample was made up of a few industries from each stratum that was chosen at random. In this situation, each sub-domain within the population's parameters was examined separately.
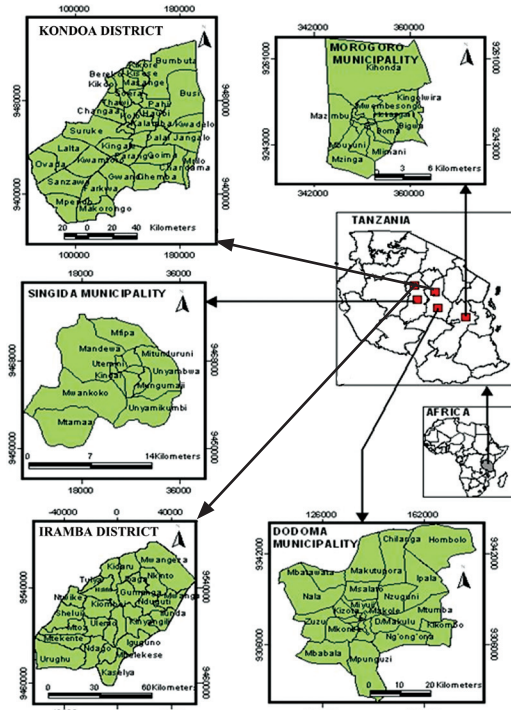
Sample size

Within the designated districts, there were 1028 registered small Agro-processing businesses from which the sample for this study was obtained. A single small agro-processing company served as the sampling unit. The sample size was calculated using the formula proposed by Bartlet *et al.* (2001) and Malangalila (2009), who claimed that a sample size of 10% to 13% is acceptable for social sciences. According to Equation 1, 13% of registered firms were used in this analysis.

Key informants from Agro-food-processing companies were chosen via purposeful sampling. In this type of study, the involvement of managing directors/owners managers as key informants is standard practice in small business research. Regional and district SIDO officers, as well as district trade and industry officers, were chosen. Using the equation 1 presented by Cochran (1977) as a sampling method:

$$n = N \times \frac{c}{100}$$ .... (1)

Where c is five percent of agro processing firms, N is the total number of agro- processing firms in the study area n is the number of selected agro processing firms. The total sample is estimated to be 134 which is 13 percent of the registered firms in the study area. The agro processing firms that are within the study area

was surveyed. The study population consisted of employees and owners and the unit of analysis was firms. Thirteen percent of all the 1028 agro-processing firms in the study area were selected for the study. Using Equation 1 the sample size is presented in Table 2.

H   for human capital and
S   for social capital.
If S has any effect on performance, its inclusion in the production function should lead to reduced regression coefficient of the other variables.
Log linear function is selected as the equation

Table 2: Selected Agro-food processing firms in the study area

Strata	Population (N)	%	Sample (n)	%
Dodoma Municipality	289	28	38	28
Kondoa	148	14	19	14
Singida Municipality	288	28	37	28
Iramba	152	15	20	15
Morogoro Municipality	151	15	20	15
Total	**1028**	**100**	**134**	**100**

Sources of data

Both primary and secondary data were used in this study. The survey covered collection of both qualitative and quantitative information. Secondary data collected for this study were from SIDO, District Councils and Regional offices. Primary data were sought from agro-food processing firms in surveyed areas.

Analytical framework

The normal production function is:
$$Y = F(K, L, H) = K^{\alpha_1} L^{\alpha_2} H^{\alpha_3} \quad \text{...................................(2)}$$

Where $\alpha_1 + \alpha_2 + \alpha_3 \approx 1$

Introducing social capital S
$$Y = F(K, L, H, S) = K^{\alpha_1} L^{\alpha_2} H^{\alpha_3} S^{\alpha_4} \quad \text{…...............(3)}$$

Where $\alpha_1 + \alpha_2 + \alpha_3 + \alpha_4 \approx 1$

$$LnY = \alpha_1 \ln K + \alpha_2 \ln L + \alpha_3 \ln H + \alpha_4 \ln S + cons \text{ .(4)}$$

If all is well
$$\alpha_1 + \alpha_2 + \alpha_3 + \alpha_4 \approx 1 \text{ and } cons = 0 \quad \text{....(5)}$$

Note: H=a(Fe.exp), S=b trust. memb
If Cobb-Douglas:
$$Y = AK^{b_k} L^{b_L} H^{b_H} S^{b_S} \quad \text{..(6)}$$

Where:
Y   stands for output,
L   for labour,
K   for physical capital,

best fit in agro food processing production function because economic researchers often express response variables in logarithms. A model in which the response variable is the log of the original series and the regressors are in levels termed a log linear model. Economists use natural log exclusively, references to log should be taken as the natural log (Cameron and Trivedi, 2010).
Taking log:
$$InY = b_A + b_k InK + b_L InL + b_H InH + b_s InS \text{ ..(7)}$$

Estimating equation, where *i* is the firm:
$$InY_i = b_A + b_k lnK + b_L lnL_i + b_h lnH + b_s lnS + \mu_i \text{ .(8)}$$

If you want to distinguish between *n* types of firm:
Make set of dummy, d_1 ... ..., d_k... ..., d_n. For type *k*
d_k=1 if the firm is of type *k*, else 0
Adding the type of dummies
$$InY_{ij} = b_A + b_k lnK_{ij} + b_L lnL_{ij} + b_h lnH_{ij}$$
$$+ b_s lnS_{ij} (a_2 d_3 + a_n d_n) + \mu_{ij} \quad \text{.....(9)}$$

The study therefore adopted the production function of the form:
$Y_i = F(K, LABOUR, SCH, MINC, PDESN, SCT)$......................... (10)
Where:
Y = Value of sales considered as dependent variable
K = Nature of equipment
L = Labour.

MINC   = Market incentives
SCH   = Year of schooling
PDESN = the number of successful product
        designs which represents innovation
SCT   = Social capital measured in trust and
        association membership.

Four functional forms were tested in order to determine which models best explains the influence of social capital on performance hence productivity of agro food processing firms. First to consider the linear regression model this shows how change in unit of Y is explained by the unit change of the coefficients of independent variable.

$$Y_i = a_0 + b_1 HC_1 + b_2 EXP_{i1} + b_3 L_{i2} + b_4 SCH_i + b_5 MINC_i + b_6 PDESN_i + b_7 SCT + \mu_i \quad ....(11)$$

Where a_0 is a constant, MINC is dummy variable for market incentives, while represents the error terms. The problem here is that the results can be inconclusive because there could be evidence of non linearity of variables.

The second considerations was to investigate if there is proportional change in Y for a given proportional change in explanatory variables. This takes care of non-linearity nature of parameters and variables. This defined as:

$$\log Y_i = a_0 + b_1 \log HC_1 + b_2 \log EXP_{i1} + b_3 \log L_{i2} + b_4 \log SCH_i + b_5 \log MINC_i + b_6 \log PDESN_i + b_7 SCT + \mu_i \quad .(12)$$

The equation considers the elasticity of Y with respect to explanatory variables and is defined as a proportional change in Y for a given proportional change in explanatory variables (HC, EXP, LABOUR, SCH, MINC, PDESN and SCT)

The third is to consider the extent every extra sales value accumulated can increase the performance by certain proportion

$$\log Y_i = a_0 + b_1 K_1 + b_2 L_{i1} + b_3 L_{i2} + b_4 SCH_i + b_5 MINC_i + b_6 PDESN_i + b_7 SCT + \mu_i \quad ..(13)$$

The equation shows that proportional change in output per unit change in HC, EXP, LABOUR, SCH, MINC, SCT/TRUST and PDESN is valid only when value of coefficient is small, otherwise it may be complex to explain when the value of coefficient is large.

The fourth consideration is whether output Y has a constant proportional rate as a unit of the dependent variables increases. The study used equation 16 for analysis.

$$Y_i = a_0 + b_1 \log HC_1 + b_2 \log EXP_{i1} + + b_4 \log SCH_i + b_5 \log MINC_i + b_6 \log PDESN_i + b_7 SCT + \mu_i \quad ..(14)$$

The equation considers the elasticity of Y with respect to explanatory variables and is defined as proportional change of Y for a given proportional change in explanatory variables (HC, EXP, SCH, MINC, SCT ,PDESN).

In economic research, we often want to combine quantitative and qualitative information in a regression model by including both continuous and indicator variables (Baum, 2006). In order to capture the social capital for the analysis the study used five independent variables including four multiplicative variables. Among them the number of years of operation (trust) is the most important variable to capture the social support for the success of any business. After evaluating the effects of social capital on performance; we run the regression for multiplicative variables to determine the interaction effect as follows:

$$InY = \beta_0 + \beta_1 (Hc)_{it} + \beta_2 (Trust)_{it} + \beta_3 (Exp)_{it} + \beta_4 (\text{Asso.mem})_{it} + \beta_4 MINC_{it} + \beta_4 PDESN_{it} + \beta_6 (Hc*Exp)_{it} + \beta_7 (Assomem*Trust)_{it} + \beta_8 (Exp*Trust)_{it} lnrel_{it} + lntr_{it} + lnfar_{it} + lncus_{it} + c_{it} + \mu_{it} \quad (15)$$

Where:

InY = value of sales per worker,

Hc = Human capital measured in years formal education and training,

$Trust$ = social capital as dummy,

Exp = experience in years,

$Assomem$ = association membership (dummy),

$lnrel$ = number of relatives helping in processing activities,

$lntr$ = the number of traders known personally,

$lnfar$ = number of farmers suppliers of raw materials known,

$lncus$ = number of customers known personally,

C_{it} = Unobserved component or random effect,

μ_{it} = error term, which captures the impact of all the unobserved factors

The value of the product is used as a proxy for output measurement in this research. Respondents in the research area, on the other hand, were typically hesitant to reveal their profit margins for fear of survey data being used to assess taxes. The number of individuals employed is used to measure labor. The value of equipment is used to calculate physical capital. Human capital variables and processor features are included because they have the potential

to improve labor and capital efficiency. The number of relatives in agro processing, the number of processors known, the number of people who can help financially, and the number of farmers known personally are all used to calculate social capital. The data is entered in log form to account for the possibility that marginal returns to social capital are decreasing. Processing experience is also recorded in a log. To account for changes between performance and production environments, location dummies are used. It is possible to claim that social capital is merely a byproduct of economic success.

According to the responses, maintaining a large and current network of business contacts is not free, but networking is time intensive and can even result in out-of-pocket expenses. Even if socializing were free, the predicted coefficient would be skewed toward zero due to excessive accumulation of social capital. As a result, even if network capital buildup is free or employed for purposes other than business, a strong coefficient on social capital should be viewed as a good signal that social capital matters. Even though the social capital is very difficult to measure, the study used social trust as a proxy and therefore to reveal that the social trust is one of the key factors that contribute positively in the success of firm business. Therefore within the broader industrial development process social capital can be considered as key production factors that influences to the firm performance.

Results and Discussion
Descriptive Statistics

Table 3 presents the distribution of existence of social capital in agro processing firms in the study area. Large number of respondents 82.84 percent cannot obtain raw material from farmers or suppliers without prior payment while only 17.16 percent can obtain without payment. The survey also reveals that 25.3 percent of owners of processing firms can sell their products to customers for them to be paid later, while majority (74. 6 percent) cannot sell without cash money. With respect to how firm owners view about the trust in their processing activities, majority 55.2 percent had the view the trust to be low while 44.7 percent stated that there is enough trust. Regarding the issue of collective action in processing activities, Fifty (50) percent had the view that there is very low collective action while 45.5 percent cited low and few stated medium collected action. Generally the results reflect the low trust that allows the processing sector. The findings are in line with Berzina (2011) who found that social capital bring additional value for enterprises due to collective action in processing activities.

Table 3: Social capital in agro processing firms

Variable	Frequency	Percent
Obtain raw materials from farmers/suppliers without direct payments		
Yes	23	17.16
No	111	82.84
Sell your products to customers for them to pay you later		
Yes	34	25.37
No	100	74.63
Trust in processing activities in your firm		
Otherwise	74	55.22
Trusted	60	44.78
Trust level in collective action in processing activities		
Very low	67	50
Low	61	45.52
Medium	6	4.48

Multivariate regression results of the influence of social capital on the performance small agro processing firms

The findings in Table 4 shows that the operational experience has negative but highly significant effect on the sales volume, human capital (training and level of education) and social trust has a positive and highly significant effect on sales volume in both types of Agro processing firms. Social trust has negative but highly significant at 5 percent level in geographically concentrated firms compared to dispersed firms. Also experience and trust gained by working as managers in the firms are also significant at the 5 percent significance level in both firms geographically concentrated and dispersed small agro processing. This result supports hypothesis that social capital (measured by membership in a business association and trust) contributes considerably to firm performance in both geographically concentrated and dispersed enterprises and is consistent with extant literature.

Human capital* experience is significant in the case of clustered agro processing enterprises, showing that formal education and prior job experience as a manager are relevant at the 1% significance level. However, formal education is significant at 5% in dispersed agro processing enterprises, demonstrating that human capital contributes more to geographically concentrated firms than dispersed Agro processing firms. This results support the findings made by Shuh *et al.,* (2011) that human capital has a positive effect on firm's performance. The study employed four independent variables, including two multiplicative factors, to capture social capital for the analysis. Trust is the most crucial variable in capturing social support for the success of any firm. This variable is significant at the 1% level in both geographically concentrated and dispersed cases, according to the research. The coefficient for association membership and trust, on the other hand, had no prior sign but was statistically

Table 4: Multivariate regression results of geographically concentrated and dispersed small Agro processing firms

Independent variables	Geographically concentrated (n= 67)	Dispersed (n= 67)
Experience	-0.013(0.014)***	0.084(0.048)***
Human capital	0.023(0.013)***	0.44(0.013)
Social capital (trust)	-0.239(0.132)***	0.10(0.025)
Association membership	-0.064(0.134)**	0.012(0.031)
Experience*trust	-0.009(0.014)***	1.05(0.36)***
Human capital * experience	-0.001(0.006)**	0.011(0.004)*
Equipment*trust	0.028(0.070)**	0.07(0.001)
Association membership*trust	-0.16(0.074)***	0.35(0.06)
Human capital *.experience*.association membership*trust*equipment	0.022(0.003)***	0.14(0.05)
Number of relatives helping in processing	0.19(0.211)	0.33(0.70)
Number of traders known personally	0.16(0.24)	0.10(0.025)
Number of farmers\suppliers of raw materials	0.09(0.003)**	-0.06(0.001)***
Number of customers known personally	-0.46(0.72)	0.99(0.36)
Constant	-6. 68(1.24)	-6.2(1.1)

Dependent variable: Sales revenue, R- square 0.763, 0.833; Adjusted R- square 0.631
*Number in parentheses are standard errors, the symbols *** significant at 1%; ** significant at 5%; * significant at 10%*

significant at the 1% probability level for clustered firms while insignificant for dispersed firms, implying that geographical concentration influences association membership and trust to increase sales volume.

The coefficient for the six multiplicative variables human capital *.experience*. association membership*trust*equipment was positive and statistically different from zero at 1 percent confidence level for geographically concentrated firms but statistically insignificant dispersed firms. This implies that interaction of human capital, experience, association membership, trust and equipment enhances production and marketing capacity leading to increased productivity of good quality products complying with standards of the processed products and enhances environmental management at the enterprise level.

As expected, the coefficients of number of farmers/ suppliers of raw materials statistically significant at 5 percent probability level in geographically concentrated and statistically significant at 1 percent confidence interval for dispersed firms this agrees with a prior expected signs, suggesting that as the number of suppliers of raw materials increase the likelihood of increasing production of processed Agro products would also increase. Similar results have also been reported by Shepotylo (2012). In views of the afore-mentioned factors the coefficient for number of relatives helping in processing activities is positive but not significant, the number of traders known personally is positive and not statistically significant this could be because the processing activities are informally done Contrary to the expected prior signs the coefficients for the number of customers known personally has negative coefficient but positive.

Output per worker regression in Agro food processing firms

The results in Table 5 show the regression

Table 5: Output per worker regression in agro food processing firms

Var	Linear	Log-linear	Semi-log	Exponential
CONS	8.78	2.854	7.532	13.315
	(7.139)	(4.670)*	(0.7147)*	(5.063)*
EQUIP	0.043	0.794	0.803	0.612
	(0.409)	(7.917)*	(7.432)*	(5.964)*
SCH	-0.386	-0.383	-0.384	-0.4023
	(-3.63)	-(3.658)	-(0.071)	-(4.032)
LABOUR	-0.081	-0.362	0.012	-0.612
	(-1.323)	-(0.613)	(0.0108)	(1.076)
TRUST	0.087	0.152	0.072	0.143
	(0.043)	(1.319)***	(0.684)	(1.254)
MINC	0.04	0.752	0.039	-0.892
	(0.556)	(0.567)	(0.397)	(0.5030
PDESIGN	0.0505	-0.505	0.546	-0.073
	(4.552)	-(4.552)	(0.534)	(0.745)
F-Value	9.628*	7.823*	7.532*	5.719*
R	0.615	0.684	0.663	0.567
R²	0.586	0.608	0.593	0.601
R (adj)	0.524	0.555	0.542	0.552
Durbin-Watson	1.727	1.824	1.763	1.816
Sample size		134		

analysis of output per worker in the production function of small agro food processing firms. The log linear function is selected as the best equation which fits the subsector because it has the highest adjusted R–square value of 0.555 with F-Value significant at 1 percent. The results show that constant and equipment are significant determinant of agro food processing firms output per worker. If new equipment is applied in processing an increase in production in these firms will influence other processors to introduce such equipment in their firms. Equipment is positive and significant at one per cent suggesting that output respond positively to increase in equipment hence technology improvement in the sub sector is very important.

The value of schooling in years is negative and significant at 1 percent. This suggests that the type of education received in schools may not be directly related to agro processing. In other words firms may be required to invest in training of workers before starting processing activities. The proxy of labour is negative and not significant. This negative value of labour suggests that employment in agro processing firms does not require specific knowledge especially for unskilled labour. Trust is the proxy to social capital which is positive and significant at 5 percent. The positive value suggests that social capital can influence performance of agro- processing firms.

Market incentive is an important factor in processing activities. The findings show that MINC is positive but not significant. The insignificant of this variable reflects that firms are surviving under harsh processing conditions. In this case how to improve marketing incentives in the sub sector is an important policy objective. The negative sign of product design reflects that there is no innovative activity in agro-processing activities.

Conclusion

This study looked at the impact of social capital on the success of small agro-food processing businesses in Tanzania's Dodoma, Singida, and Morogoro areas. The study's goal was to see how social capital affected the performance of small agro-food processing businesses. The study draws the following conclusions based on the findings and discussion. One important aspect that contributes to the success of processing activities is trust. Within the context of agro-industrial development, social capital can be thought of as a key production component that affects business performance. Other aspect include the interaction of human capital, expertise, membership in trade associations and enhanced equipment improves production and marketing capacity, resulting in increased productivity of high-quality processed products that meet industry standards.

The study presents two recommendations based on its conclusion: first, social interaction and networking be strengthened in order to strengthen effective forward and backward linkages in all levels of the agro processing value chain. Second policymakers should remember that economic growth is connected to education and knowledge dissemination, both of which necessitate favorable social conditions, such as high levels of trust. In this regard, improving institutional quality in Tanzanian SMEs could be a good place to start.

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