

Research Article

Is Coffee Cooperatives Performance decided by the Human Capital Proficiency in Ethiopia?

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Abstract

*Advancement in revenue generation and growth for a nation is thought to be based on its human capital. The developing markets include Ethiopia and others. In a number of empirical researches, the impact of effective utilization of human capital on coffee cooperatives performances taken into account. The existing literature, especially when using the SEM model, has largely stressed on the impact of optimization of coffee cooperatives performance in human capital context and Ethiopia coffee markets. This work employs the generalized EFA, CFA, and SEM methodologies. The empirical findings in this research cooperatively establish the association among human capital proficiency and coffee cooperatives performance in Ethiopia. The research presented in this study also shows that, contrary to popular belief, human capital accumulation is not as high in the coffee cooperatives as it once was. In the Ethiopian economy, the effectiveness of human capital differs among coffee cooperatives. It was founded by SEM, when the human capital grows by one standard deviation while the other independent variables remain constant; the coffee cooperative performance often increases by a 70.3%. In this paper, we present the policy ramifications of our findings.*

**Keywords:** Financial service. Human capital. Coffee cooperatives. Ethiopia. SEM.

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## 1. Introduction

In the age of globalization, Ethiopian coffee businesses must contend with growing rivalry from both domestic and foreign businesses. Financial resources have occasionally been viewed as an edge over rivals for regional coffee businesses. However, the capacity to raise a sizable sum of money has become more difficult (Shumeta & D'Haese, 2016). Along with scientific and technological developments as a part of human capital, technology has also evolved into a competitive advantage (Ployhart, 2021). Still, even when businesses have plenty of financial resources, cutting-edge technology, excellent services, and a reliable infrastructure, it is challenging for them to be effective over the long term and to gain an edge over their competitors without a high-quality labour force (Czyżewski et al., 2021). Human capital is one of the most crucial elements in the effective execution of corporate plans since it helps to increase effectiveness and proficiency (Mohammed & Lee, 2015).

Human capital, as measured by learning, has a significant impact on the productivity of 2130 Ethiopian coffee operators. Additionally, researchers claimed that the banking industry had amassed more intellectual capital than other industries. Comparatively speaking, coffee cooperatives have reached a higher level of uniformity (Tilahun, 2007). Since one of the most essential indicators of an employee's ability is intellectual capital, the literature places a high value on staff identity. Additionally, financial organisations functioning in a highly regulated environment have a tendency to be further acquiescent through rigid requirements than cooperatives enterprises, which results in varying rates of human capital growth (Omer et al., 2016).

The following ways in which this study advances information on human capital effectiveness. To support guiding principle suggestions in Ethiopia, we first look at the significant significance of human capital proficiency diagonally multiple industries. Second, the SEM model is applied in Ethiopia for the first time to quantify and comprehend the link among coffee cooperatives performance across sectors and human capital proficiency. We discuss a few policy ramifications based on this paper's significant findings.

### Human capital and cooperative performance in Ethiopia

Positive changes have been seen in the economic growth of Ethiopia, both in terms of quantity and quality. Prior to now, labour and capital, in particular, were the primary drivers of growth. However, in recent years, the total factor productivity (TFP) as a whole has become more crucial to the expansion of the national economy (Czyżewski et al., 2021). Since 2010, capital has contributed less and less to economic growth, falling from 67% in the period of 2012–2017 to 41% in the period of 2018–2022. TFP tends to move in the

other direction, rising from roughly 12% among 2001 and 2005 to 40% among the most recent era and 2020 (Omer et al., 2020).

Human capital is regarded as the largest resource in the country and the most crucial resource for businesses, among the variables that support the expansion of Ethiopia's economy and businesses (Kant et al., 2022). The Ethiopia government has worked very hard to improve the scope and standard of human capital, which is a crucial and essential component of the country's economic development. The value of human capital in fostering modernization and boosting a cooperatives output was emphasized in a study with analysis of Sixty manufacturing businesses in Ethiopia.

According to a study that used statistics from 241 modern technology-based enterprises, social and human capital is significantly correlated with corporate performance. The effect of human development as a capital on the efficiency of subsidiaries in Ethiopia was studied. The writers made the case that a company's production increases as often as it trains new hires (Emana, 2019).

The effect on coffee cooperatives in 2020 of human capital was showed on capital structure decision and cooperative profitability. The consequences of this investigation show a positive correlation among a cooperative's wealth and its human capital. However, the existing literature has mainly disregarded empirical research that examines how human capital affects company performance with development of human capital (AlQershi et al., 2021).

### **Theoretical framework**

The quality of the workforce is the main component of the broad concept of human capital, which includes many other elements as well. Employees are seen as investors in a company who are compensated with human as capital and the anticipated profit (Nusa, 2021). On the idea of human as capital, there have been three main points of view presented. According to the first perspective, human as a capital is a product of asset management practice; therefore, the value of human as a capital is invested to increase corporeal prowess, innate intelligence, and the acquisition of knowledge and skills (Kant et al., 2023).

This viewpoint relates to investments. The subsequent concept of fractional production takes into account human as a capital, which is the unique acquaintance, expertise, operating capacity, and experience of managers and technicians innovators (Yadete et a., 2023). Last but not least, the perspective on overall output sees human as a capital as the complete value of an individual's corporeal prowess, expertise, intelligence, as well as abilities applied to the production of goods. The third perspective, which holds that a person's working potential is their human capital, has gained considerable support. It believes that human

capital is not just restricted to management or technical staff (Tuffa et al., 2023). Talents, abilities, vitality, and information found in people can be used to create products or render helpful services. Employees' knowledge, skills, capacity for growth, and creativity are all examples of an organization's human resources. all at once. stated that employee knowledge and professional abilities produce human capital, which cannot be exchanged and is not something that an organisation possesses (Adula et al., 2023).

The VAIC model, created by Pulic in 1998, examines how effectively a cooperative's physical and non physical possessions are used to create value (by splitting intellectual capital into customer capital and structural capital). According to Nazari et al. (2017), the VAIC is made up of three distinct components: the effectiveness of human capital, structural capital and the effectiveness of capital employed. The VAIC model was created to make it possible for managers, investors, to track and assess the proficiency of a cooperatives overall resources as well as each of its important supply sides. The approach provides fresh perspective on how well accounting-based indicators are used at organisations to assess and manage the value creation process. The VAIC model's most important component is human capital proficiency (Ployhart, 2021). The approach provides fresh perspective on how efficiently accounting-based indicators are used to measure and track the value creation process at businesses. The main part of the VAIC model is human capital proficiency, which may be summed up as employees' abilities, skills, knowledge, and innovation.

## **2. Literature review and Synthesis of hypotheses**

Prior research has supported the association among improved company performance and human capital proficiency and measured the academic investment and the impact of its various elements on cooperative growth using data from 21 insurance companies. They discovered that the efficacy of financial institutions is significantly impacted by human capital proficiency. Additionally, it was discovered that human capital had a favourable correlation with prospective students' interest (Boson et al., 2023).

Investigation from 2001 to 2016 the effect of intellectual estate on the economic health reflected on at 710 Indian enterprises. The findings showed that while human capital proficiency has a noteworthy relation with company output, enhances capital proficiency and the proficiency of structural capital are equally substantial contributions to enterprises (Ployhart, 2021). 213 coffee cooperatives were polled in order to gauge how intellectual capital—which includes human, social, and organisational capital—affects business performance. On the basis of exploratory, concooperativeatory, and moderating factor analyses, they came to the conclusion that social and human capital is crucial for a cooperative's success (Gupta & Raman, 2021).

A research was conducted to investigate the connection among three performance measures of cooperatives; employee satisfaction, financial gain and internal process capacity with human capital (Tuncdogan et al., 2021). The findings demonstrated that internal process capacity is strongly impacted favourably by human capital proficiency. Similar to this, 55 Malaysian technology enterprises were examined by Rahim et al. (2017) in 2009. The findings demonstrated a significant and advantageous link among human capital proficiency and cooperative growth (Shiferaw et al., 2023).

Kwarbai and Akinpelu (2016) examined the effects of human capital proficiency on cooperative survival at trade products companies using multiple linear regression models (Panigrahi et al., 2023). They discovered that human capital proficiency has a large positive association by means of financial gains and inverse association with employee satisfaction. Human capital proficiency is all found to be positively correlated, according to their research.

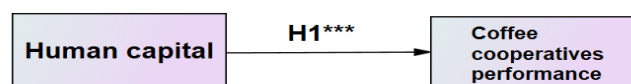
At 22 African coffee cooperatives conducted study looked into the association among four metrics and human capital proficiency. The paper's main finding is that employee productivity and human capital proficiency are related. Moreover, the impact of 145 cooperatives dealing in coffee on the proficiency of their human, relational, and structural capital was founded positive. They came to the conclusion that, in contrast to human proficiency in capital and relational capital proficiency, structural capital proficiency has a considerable impact on performance. Furthermore, it was noted that human as a capital influences a company's financial performance. Companies are becoming more and more interested in the value of human capital. Additionally, the disclosure of human resources has evolved over time to include increasingly substantial information and cohesive forms (Gobena & Kant, 2022).

H1: The profitability of all sectors is positively impacted by human capital proficiency.

### Conceptual Framework

Human capital used proxies are education, training and awareness. Coffee cooperative performance proxies used proxies are non financial performance, financial performance and employee satisfaction based on BSC model used to measure firm performances.

Figure 1: Conceptual Framework



Source: Researchers Own construct, 2023

### 3. RESEARCH METHODOLOGY

#### *Description of the study area*

One of Ethiopia's largest regions, Oromia, produced 3,101,927.33 quintals of coffee in the current fiscal year on 489,799.36 hectares of land, generating an average of 6.33 quintals per hectare. Founded in 1999, the Union of Oromia Coffee Producers Cooperatives. Of Ethiopia's green coffee growers, OCFCU has seen the biggest growth. Total membership in its 250 cooperatives is 250,000. The Guji administrative zone is a well-known region that is well-equipped for manufacturing and exporting coffee among the local regions that grow it.

#### *Study Population, Sample Size and Data Sources*

Using a structured questionnaire, 425 participants in these cooperatives of coffee farmers supplied primary data. The 33 major coffee growers' unions in six coffee-producing regions of Ethiopia's west and east Guji zone that have been around for more than five years made up the population under study. It is alleged that the study lacks precise recommendations for the ideal sample size.

Even yet, a tiny sample can fairly represent a uniform population. A substantially bigger sample size is needed for a diverse population. When running a multiple regression, it was suggested to employ a suitable ratio of 10:1 events plus a reasonable number of independent determinants. Size of sample of 10:1 is appropriate, as per Creswell (2014), who makes a similar claim. In order to obtain the secondary data, balanced pane time series data from ten consecutive years of audited financial records were used.

#### *Sampling Techniques and Procedures*

The primary cooperatives were chosen from several clusters using an acceptable method of systematic random selection with many phases. Random sampling from very large groups or communities with a diversity of geographic characteristics is made possible with the aid of cluster sampling. Cost reductions achieved via improved sampling proficiency are a key objective of cluster analysis. Moreover, although each cluster has an equal chance of getting chosen from the final sample, things with a lot of clusters have a substantially lower chance of doing so. The use of a probability method proportionate to size, which accounts for both the variety of cluster sizes and the likelihood that specific clusters would be chosen, can help to solve this issue.

**Data Analysis Tool**

With the help of SPSS AMOS version 26, the data was examined. The thorough statistical applications encompass each and every common univariate, bivariate, and multivariate statistical procedure.

**4. Results And Discussion**

*Assessment of normality*

Skewness is an indicator of symmetry, or preferably, lack of it. It is considered to be symmetrical if an assortment or data set looks identical to both sides of the central location. A statistic called kurtosis indicates whether heavy-tailed or light-tailed the information are in juxtaposition with a distribution that is normal.

Human capital used proxies are education, training and awareness. Coffee cooperative performance proxies used proxies are non financial performance, financial performance and employee satisfaction based on BSC model used to measure firm performances.

**Table 1: Normality test**

Variable	min	max	skew	c.r.	kurtosis	c.r.
NONFIN_Mean	2.333	5.000	.054	.434	-.339	-1.356
FIN_Mean	2.333	5.000	-.044	-.352	-.683	-3.136
EMSAT_Mean	2.000	5.000	.051	.407	-.491	-1.968
EDU_Mean	1.000	5.000	-.163	-6.109	.101	.403
TRAN_Mean	1.000	5.000	-.159	-7.681	.674	3.900
AW_Mean	1.000	5.000	-.110	-5.687	.671	3.888
Multivariate					3.672	4.679

Source: AMOS, 2023

**Note:** NONFIN= non financial performance; FIN= financial performance; EMSAT= employee satisfaction; EDU= education; TRAN=training and AW=awareness

The thresholds for asymmetry and kurtosis have been established between -2 and +2 in order to show an even univariate distribution as well. The data is observed deemed as normal because skewness has been determined to be within 2 and +2 and kurtosis was determined to be within 7 and +7.

**Data Reliability**

The investigator used the KMO assessment of sample adequacy test to figure out whether or not factor analysis ought to be applied on the given information set. The Bartlett's test is used to figure out the sphericity of each variable in the correlation between population variables matrix in order to disprove the null hypothesis that all of them are non-correlated.

**Table 2: KMO and Bartlett's Test**

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.792
Bartlett's Test of Sphericity	Approx. Chi-Square	690.440
	df	15
	Sig.	.000

Source: SPSS, 2023

Indicating that association prototypes are relatively compressed and the information had sphericity, the KMO value, which was established as .792 and is among 0.6 and 1, led factor analysis to develop distinct and reliable determinants. The KMO evaluates sample adequacy, and an acceptable factor analysis was accepted when the value was more than 0.5. The method and Human capital plan are two components of access latent variable performance appraisal. Data sphericity was predicted by KMO and Bartlett's Test to be founded on the KMO is 0.792. As a result, KMO results showed that the data were adequate. The table below shows the overall variation that has been explained.

**Table 3: Cumulative Explained Variance**

Module	Initial Eigenvalues			Squared Loadings			Extraction			Squared Loadings			Rotation		
	Total			Total			Total			Total			Total		
	sum	% of discrepancy	% of collective	sum	% of inconsistency	% of collective	Sum	% of discrepancy	% of collective	Sum	% of discrepancy	% of collective	Sum	% of discrepancy	% of collective
aspect	1	2.990	49.829	49.829	2.990	49.829	49.829	2.243	37.381	37.381					
	2	1.044	17.407	67.236	1.044	17.407	67.236	1.791	29.855	67.236					
	3	.623	10.379	77.615											

Extraction Method: Principal Component Analysis.

Source: SPSS, 2023

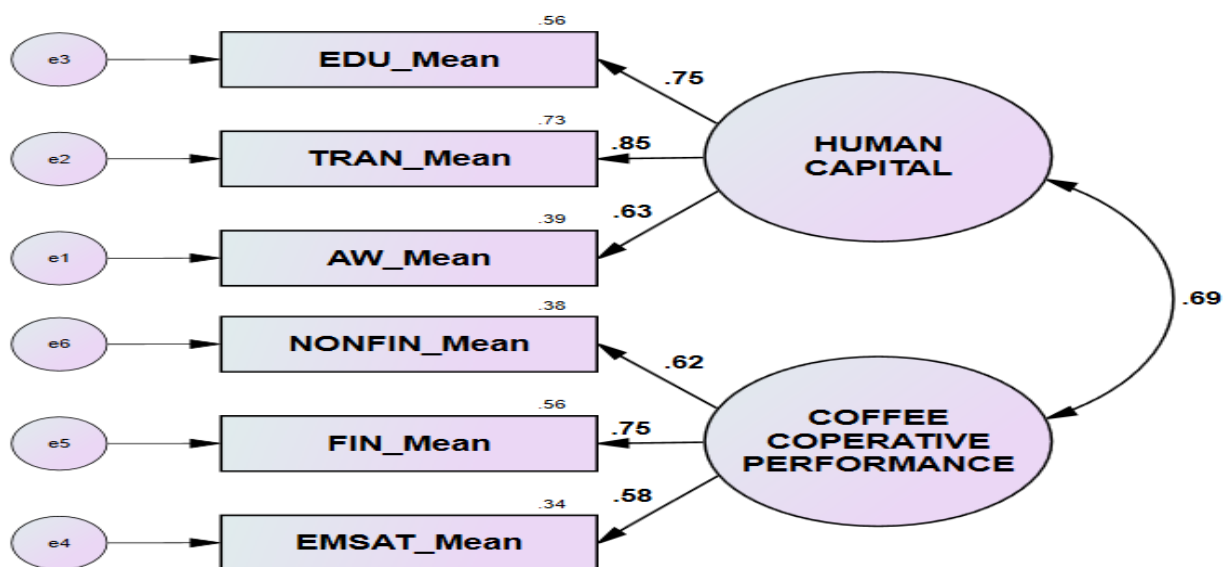


With help of Principal Component Analysis and Varimax rotation, Total Variance Explained was founded as 67.236. Seven items Initial Eigen values were founded more than 1, so these seven items considered as proxies used for further investigation. Total Variance Explained was founded as 67.236; it sowed all identified seven items able to explain the dependent variable behaviour by 67.236%.

**Analysis to confirm the factors (CFA)**

Researchers can test hypotheses using analysis to confirm the factors CFA based on correlations among variables that are seen and underlying structure (Luong & Flake, 2022).

**Figure 2: Confirmatory Factor Analysis**



Source: AMOS, 2023

**Table 4: Covariances**

		Estimate	S.E.	C.R.	P	Hypothesis
Human Capital <-->	Coffee Cooperative Performance	.108	.016	6.647	***	H1

Source: AMOS, 2023

The financial results of coffee cooperatives and human capital (H1) were shown to be correlated in the estimate result of the CFA shown in the table above. If the prediction made in the subsection titled “distributing” assumptions for AMOS model” is legitimate, the covariance projected to be 0.122

demonstrates a result on a nearly typically distributed random variable focused within the sample's covariance with an error rate of 0.18, meaning that any critical ratio that exceeds 1.96 in scale (6.647) was found significant. Because the critical ratio at the 0.05 level of significance is more than 1.96 and the estimated standard error (S.E.) of the covariance is 0.017, the covariance among the variables was substantially different from zero. The correlations are displayed in the table below.

***Discriminant Validity***

Discriminant validity is proven by the lack of substantial associations among indicators of constructs that conceptually should not be substantially associated with other constructs. Practically speaking, as demonstrated by the results displayed in the table below, the magnitude of discriminant validity coefficients should be considerably smaller than that of convergent validity coefficients.

**Table 5: Validity for Discriminant issue**

	<b>Critical Ratio</b>	<b>Avg. Vari. Ex.</b>	<b>MSV</b>	<b>Max-R(H)</b>	<b>Human Capital</b>	<b>Coffee Cooperative Performance</b>
<b>Human Capital</b>	0.737	0.589	0.582	0.779	<b>0.769</b>	
<b>Coffee Cooperative Performance</b>	0.729	0.681	0.569	0.741	0.711	<b>0.759</b>

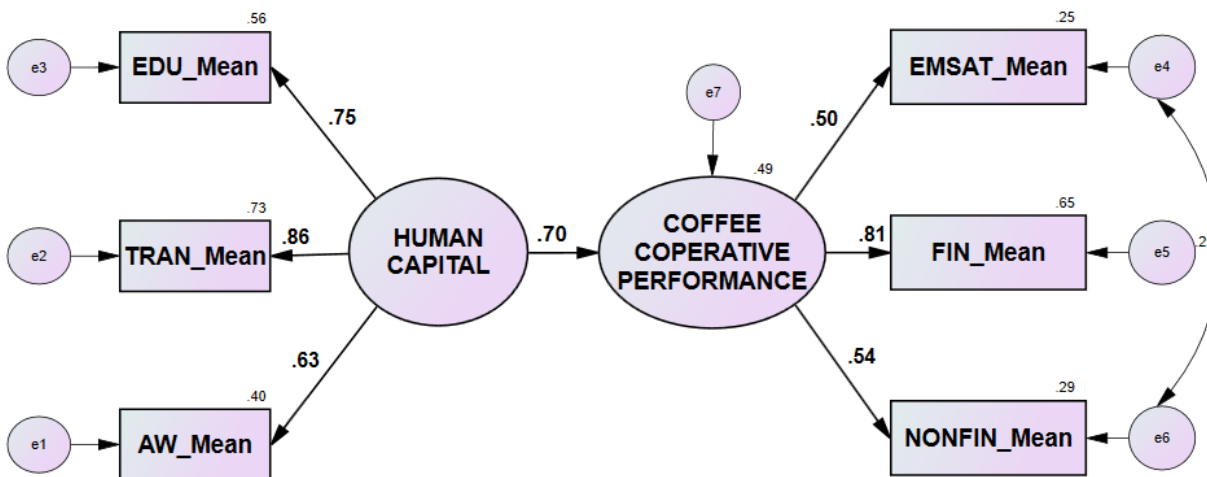
Source: StateWiki, 2023

Because the square root of the AVE for Textile Industries Performance is greater than the absolute value of the correlations with another component, discriminant validity was attained. The AVE for Textile Industries Performance is more than the MSV also showed discriminant validity. The dataset did not uncover any problems with convergent validity.

***Structural equation model***

An approach to multivariate statistical analysis used by the researchers to examine structural links is called structural equation modelling. By this method, researchers combined the multiple regression analysis with component analysis, and examined the structural link among measured variables and latent constructs.

Figure 3: Structural equation model



Source: AMOS, 2023

The correlation among a human capital and its items (Proxies/ observed items) and a factor is essentially represented by the factor loading. The variance on that specific factor that is explained by the factor's loading is displayed. As a general rule, the factor in the SEM technique is considered to have extracted enough variance from the variable when the loading is 0.5 or greater. Structure equation model depicted that when the human capital grows by one standard deviation while the other independent variables remain constant, the coffee cooperative performance frequently increases by a 70%. Standardised regression weights for standardised data were measured that the change of 70% in the coffee cooperative performance in terms of standard deviations was due to per unit change in the human capital.

sd

**Model fit indices**

Table 6: GOF indices

Measurement Category	Fit Indices	Model Value
Chi-Square	CMIN	19.417
	P-Value	.007
	CMIN/DF	2.774
Absolute fit measurement	GFI	.983
	SRMR	.0229

	RMSEA	.068
Incremental fit measurement	CFI	.982
	IFI	.982
	RFI	.940
	TLI	.961
parsimony fit measure	PNFI	.454
	PCFI	.458

Source: AMOS output, 2023

According to the findings shown in the table above, the CMIN/DF value is 2.774 and is below the value of 3, indicating a good model fit. The p value is 0.007, the goodness fit index (GFI) is 0.983 greater than 0.95, the comparative fit index (CFI) is 0.982 greater than 0.90, and the root mean square error of approximation is 0.068 less than 0.080. The model's overall fit is good as a result. The GFI for the default model has a value of 0.983, which is greater than 0.95 and indicates that the proposed model by the researchers is different from other models, which is the value that is of interest in this situation.

The amount of variation in the dependent variable that can be attributed to a change in the predictor variable equal to one standard deviation unit is represented by the standardised regression weights.

**Table 7: Standardized Regression Weights**

		Estimate
Coffee Cooperative Performance	<--- Human Capital	.703
Awareness	<--- Human Capital	.631
Training	<--- Human Capital	.856
Education	<--- Human Capital	.746
Employee satisfaction	<--- Coffee Cooperative Performance	.499
Financial Performance	<--- Coffee Cooperative Performance	.809
Non-Financial Performance	<--- Coffee Cooperative Performance	.541

Source: AMOS, 2023

Standardized regression weight was measured that the change of 70.3% in the coffee cooperative performance in terms of standard deviations was because of per unit change in the human capital. 70.3%

regression coefficients for standardised data are known as beta weights. When the human capital grows by one standard deviation while the other independent variables remain constant, the coffee cooperative performance often increases by a 70.3%.

## **5. Conclusion**

The research has mainly disregarded the significance of human capital proficiency to cooperative profitability for coffee cooperatives in Ethiopia and other emerging markets in Africa. This study uses the SEM model to give empirical evidence about the influence of human capital proficiency for coffee cooperatives in Ethiopia utilizing an imbalanced panel dataset. Our empirical results somewhat support the widely held belief that the banking sector has higher human capital proficiency sensitivity than other industries. We discover that Ethiopian coffee cooperatives have inferior human capital proficiency. Additionally, we discover that human capital proficiency affects business financial performance utilising the widely utilised VAIC approach. This finding is consistent with those of earlier research. Ethiopian coffee cooperatives are more impacted by human capital proficiency than cooperatives in other nations.

Despite to popular belief, this study's data also shows that human capital accumulation is not as high as it formerly was in coffee cooperatives. Various coffee cooperatives in the Ethiopian economy have different levels of human capital productivity. The coffee cooperative's performance often improves by a factor of 70.3% when human capital grows by one standard deviation while the other independent variables remain constant, according to SEM. In this study, we discuss the policy implications of our findings.

Our findings have some policy repercussions for both governmental and corporate management. This study's empirical data demonstrates that human capital proficiency affects corporate performance. As a result, listed companies in Ethiopia ought to give the development of human capital more consideration. For instance, businesses should think about providing employees with competitive pay and attractive benefits that are appropriate with their hard work and create opportunity for advancement and career development. Simultaneously, businesses must create training programmes, raise staff standards, and make investments in workspaces and working environments to enable staff to increase productivity and boost company performance through the accumulation of human capital. The growth model for manufacturing companies needs to be reevaluated, moving away from relying primarily on the exploitation of natural resources, investment of capital, and labour, and towards synthesis and effective use of the enterprise's resources, particularly high-quality human capital with scientific, technological, and creative competence

by focusing on the simultaneous application of solutions to enhance company competitiveness, quality, proficiency, and sustainable development.

In addition to utilizing a sophisticated and popular SEM model, this study adds to the body of knowledge by shedding light on the association among company performance and human capital proficiency in Ethiopia's diverse industries. These findings can give managers and policymaker's empirical data to help them understand the present state of human capital proficiency across industries and how it affects cooperative performance. As a result, the government and company executives can create policies and programmes that emphasise the impact of human capital development on the financial performance of businesses across all industries.

The drawback of this investigation stems from its concentration on the effect of human capital proficiency on cooperative effectiveness; consequently, additional investigate be supposed to broaden our work to include the other elements of academic investment, for a more thorough analysis of the role of human as a capital in cooperative economic growth. It's crucial to comprehend how human as a capital proficiency can be increased and what elements should be taken into account when managing these intangible assets.

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