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Factors influencing company performance and global value chains participation: the case of textiles and apparel industries in Ethiopia in Eastern Industrial Zone (EIZ)

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ABSTRACT

This paper aims to identify the factors influencing companies' performance of Textiles and Apparel Industries in Ethiopia, particularly, in the Eastern Industrial Zone. The researchers employed Maximum Likelihood with Robust (MLR) in Confirmatory Factor Analysis Model (CFA) for survey data gathered from the employees of the Textiles and Apparel industries operating in the Eastern Industrial Zone in Ethiopia which took place from 2020-2021. Main findings of this study indicate that (i) one-unit enhancement in Companies' Performance yields a favorable impact on raw materials & financial situation; (ii) human capital experiences a rise in the expected units followed, (iii) competitive environment displaying an increase of the units as well, (iv) policies environment demonstrates an improvement, finally (v) organizational development exhibits growth of the expected units as well. This study has identified that these five endogenous latent variables are positively influenced by exogenous latent variable, Companies' Performance because all have shown the results above the expectation. This study brings insight to investors how they boost their companies' performance and develops the best strategies for the success of their companies.

Introduction

Ethiopia is a developing country which is located in the Eastern Part of Africa and is now acknowledged as the fastest-growing developing country amongst the Sub-Saharan African (SSA) economies. Ethiopia is "a preferred investment destination in Africa" (Oqubay, 2019).

Textile Industry is one of the oldest large-scale economic activities that had a good and long history in leading the industrialization growth dated back to centuries ago. It is also the first manufacturing industry to have a global dimension. This sector is the most geographically dispersed of all industries across the developed and developing countries. Textile could be manufactured using relatively simple technology and low-skill labor. The traditional skills of hand spinning, weaving and sewing served as the basis for larger industries. English inventors in the 18th century began to automate textile cottage industry processes including carding, spinning and weaving (Connell & Golub, 2008).

The share of African countries in the world trade of textiles and garments is not comparable to Asian countries, European Union and the USA. However, presently, as the labor cost in South East Asia is reveals an inclination of increasing; the market is starting to shift to Africa. The geographical trends in the production of textile industry show a clear pattern of continuous decline in the developed countries, and a geographical movement of production to developing countries (Lebenie, 2015).

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Global value chains (GVCs) powered the surge of international trade after 1990 and now account for almost half of all trades. This shift enabled an unprecedented economic convergence: poor countries grew rapidly and began to catch up with richer countries. Since the 2008 global financial crisis, however, the growth of trade has been sluggish and the expansion of GVCs has stalled. Meanwhile, serious threats have emerged to the model of trade-led growth. New technologies could draw production closer to the consumer and reduce the demand for labor. And conflicts among large countries could lead to a retrenchment or a segmentation of GVCs. Das et al. (2023), Trading for Development in the Age of Global Value Chains examines whether there is still a path to development through GVCs and trade. It concludes that technological change is at this stage more a boon than a curse. GVCs can continue to boost growth, create better jobs, and reduce poverty provided that developing countries implement deeper reforms to promote GVC participation, industrial countries pursue open, predictable policies, and all countries revive multilateral cooperation.

GVCs enable companies to diversify their supplier base across different regions and countries. This diversification can enhance supply chain resilience by reducing the risk of disruptions caused by localized events such as natural disasters or political instability (Paulraj, 2011). For example, research in the automotive industry has shown that companies with geographically dispersed suppliers are better equipped to manage supply chain disruptions (Choi & Hong, 2002).

Though other researchers have gone through different steps to studying the performances of different companies in different regions, efforts made so far have not been fully investigated the newly introduced Global Value Chain (GVC) approach's contribution which, in most cases has positive roles to play that can expedite the development of the countries applying its theories. In our case, efforts were made by taking the case of textiles and apparel sector in Ethiopia, mainly those in the Eastern Industrial Zone. The study aims to identify the factors influencing Companies' Performance by investigating the mediating role of Global Value Chains Participation on improving the performance of the Textiles and Apparel Companies in Ethiopia.

This paper is organized as follows: following the introduction part, a second part is a literature review with theoretical and empirical studies that shed a light on linkage between theory and practice. The third part introduces the background information on research and methodology. After analysis and findings of the study, authors provide discussions and implications. Finally, this paper concludes with key points, recommendations, future research directions and limitations.

Literature Review

This part of this article provides the literatures reviewed that are deemed have relationship with the Global Value Chains and Textiles and Apparel sector. This section is divided into two parts such as Theoretical and Conceptual Background and Empirical Review and Hypothesis Development.

Theoretical and Conceptual Background

Under this section, theoretical and conceptual backgrounds which have linkage with the hypothesis are linked with empirical reviews as articulated in the following sub-sections.

Financial Performance in GVCs

Global Value Chains (GVC) participation can indeed have a significant impact on a company's profitability and revenue growth, but it also requires prudent risk management strategies to ensure financial stability in an increasingly interconnected global economy. The exact effects vary based on the industry, the firm's position in the value chain, and the broader economic context. Empirical evidence on the effect of Global Value Chain (GVC) participation on a company's profitability, revenue growth, and financial stability is crucial to understanding the impact of such participation. Here, we present findings from relevant studies along with their references:

A study by (Kakran et al., 2023) analyzed data from APEC countries on Stock Market integration and volatile spillover and found that firms with a higher degree of international involvement, including participation in GVCs, tend to have higher profitability. GVC participation allows firms to exploit economies of scale, leading to increased profits (Blonigen et al., 2019).

The World Bank's "Global Value Chains: From Productive Transformation to Export Growth" report (2017) presents empirical evidence showing that firms that integrate into GVCs tend to experience higher revenue growth rates. This is particularly significant for firms in developing countries that benefit from GVC participation (Pahl & Timmer, 2020).

Global Value Chain (GVC) participation can enhance growth; it may also introduce risks affecting financial stability. The study emphasizes the importance of risk management strategies for firms involved in GVCs to ensure financial stability (Harvie et al., 2015).

These studies collectively suggest that GVC participation can positively impact profitability and revenue growth, particularly for firms in developing countries. However, it is crucial for companies to manage associated risks to maintain financial stability. The effects can vary across industries, firm sizes, and specific GVC positions, highlighting the need for a nuanced understanding of the relationship between GVCs and firm performance.

Innovation in the Textile Industry

One of the primary ways GVCs influence innovation in the textile sector is through collaboration. Companies within the value chain work closely together, sharing expertise and knowledge. For instance, textile manufacturers may collaborate with material suppliers, fashion designers, and retailers. This collaborative approach fosters innovation by combining diverse skill sets and insights (Bachmann & Miretski, 2012); (Gereffi et al., 2005).

Design and Product Development

GVCs enable textile firms to tap into global design talent and trends. By collaborating with international designers and leveraging market insights from various regions, companies can develop products that resonate with a broader customer base. This approach enhances innovation by infusing diverse design elements into textile products (Razzaq et al., 2018).

Technology Transfer and Upgrading

Participation in GVCs often involves the adoption of advanced technologies and processes. Companies from emerging markets, integrated into GVCs, gain access to technology and knowledge transfers. This technology upgrading contributes to innovation capabilities, enabling the production of higher-quality textiles and more sophisticated products (Pietrobelli & Rabellotti, 2011).

Market-Driven Innovation

GVC participation allows textile firms to be more responsive to market demands. Rapid communication and flexible supply chains enable quick adjustments to changing consumer preferences. This market-driven approach to innovation ensures that products remain competitive and in demand (Mani, 2004).

Empirical Review and Hypothesis Development

Global Value Chains and Company Performance in the Textile Industry

Global Value Chains are networks of companies and suppliers involved in the production of goods and services, spanning multiple countries. In the textile industry, GVCs involve the sourcing of raw materials, manufacturing, design, and distribution across borders. This integration has redefined how textile companies innovate (Gereffi et al., 2005).

Empirical studies have examined the impact of Global Value Chain (GVC) participation on companies in terms of profitability, revenue growth, and financial stability:

Evidence on the determinants of GVC participation based on data from over 100 countries indicates that it indirectly contributes to the understanding of the factors that influence a company's decision to engage in GVCs, which can affect profitability and revenue growth (Fernandes et al., 2021).

The World Trade Organization's report discusses the on-going development of GVCs and their implications for economic growth. Although the report doesn't specifically delve into empirical evidence, it provides valuable insights into the evolving landscape of GVCs, which can indirectly impact a company's performance (Fernandes et al., 2021).

While not directly related to company-level profitability and revenue growth, this research highlights the complex interactions between GVC participation and broader economic and security aspects, which can indirectly influence financial stability (Hu et al., 2021).

The behavior of GVCs in the context of the Italian industry, focusing on innovation and performance was explored. This study offers insights into how GVC participation can affect firm-level performance, including profitability and growth (Brancati et al., 2017).

The U.S. International Trade Commission's publication on GVC analysis provides a conceptual understanding of the economic impact of GVCs in areas like competitiveness, economic development, and labor markets. While it doesn't present empirical evidence, it offers a foundation for understanding the potential effects of GVC participation on various aspects of a company's performance (Jones et al., 2019).

An empirical assessment of the determinants of participation in GVCs for countries at different economic levels was conducted. While this study focuses on countries, its findings can provide insights into how GVC participation may impact the profitability, revenue growth, and financial stability of companies in those countries (Kowalski et al., 2015).

These studies collectively contribute to our understanding of how GVC participation can influence a company's financial performance, though the specific effects may vary depending on factors such as industry, location, and firm size.

Challenges and Contextual Factors

While GVCs offer significant opportunities for technology transfer and knowledge exchange, several challenges and contextual factors influence the extent of these benefits:

i. Absorptive Capacity: The ability of firms to absorb and effectively use transferred technology and knowledge varies. Firms with higher absorptive capacity tend to benefit more from GVC participation (Blomström & Kokko, 1998).

ii. Intellectual Property Protection: Intellectual property rights and protection mechanisms can impact the willingness to share technology and knowledge in GVCs (Keller, 2004).

iii. Government Policies: Government policies and regulations play a crucial role in shaping the conditions for technology transfer and knowledge exchange within GVCs (Marias et al., 2007).

Following the above empirical reviews, the following hypotheses are developed:

i. Raw Materials and Financial Situations (RmFinSitua) positively influences the performance of the companies and Global Value Chains Participation.

ii. Human Capital (Humcap) has positive influence on the performance of the companies and Global Value Chains Participation.

iii. Competitive Environment (CompetEnvir) positively affects the performance of the companies and Global Value Chains Participation.

iv. Policy Environment (PolEnvir) positively influences the performance of the companies and Global Value Chains Participation.

v. Organizational Development (OrgDevp) has positive influence on the performance of the companies and Global Value Chains Participation.

The evidence suggests that GVC participation can promote technology transfer and knowledge exchange among firms. However, the extent of these benefits depends on various factors, including the industry, firm-specific absorptive capacity, and the regulatory environment. Firms that strategically leverage GVCs for technology and knowledge acquisition can enhance their competitiveness and innovation capabilities.

Research and Methodology

The methodology section of this article presents the overall designed activities that played great roles for the analysis of the data obtained from the survey conducted in the Textiles and Apparel Industries in Ethiopia, Eastern Africa, particularly those which are found in Eastern Industrial Zone. It provides a brief description about the model used to analyzing the survey data. The data were primarily gathered with the help of questionnaires designed for the employees with experiences of above 1 year in the textiles and apparel companies.

The questionnaires cover the issues of 19 items such as Availability of Raw Materials (ARMD), Low Cost of Raw Materials (LCRM), Availability of Working Capital (AWC), Sufficient Loan Providing Institutions (SLPI), Ease of Finding Skilled Labor (EFSL), Gaining Access to Technology and Information (GATI), working with Old Equipment (WOEQ), Familiarity with New Machines (FNEM), Public Demands on Companies of Textiles and Apparel (PDCTA), Availability of Strong International Competitors (ASIC), Unavailability of Strong Domestic Competitors (USDC), Access to International Markets (AIM), Cost of Licensing and Registration (CLR), Procedures for Registering and Commencing Business (PRCB), and Bureaucratic Red-tapism (Delay) (BRTD).

Sample and Sampling Characteristics

The target is the Textiles and Apparel Industries from the sample size that was determined by the researchers. 2,022 respondents were selected using online calculator for a-priori sample size for structural equation models (Soper, 2021) from a population of 7,645. It resulted from the minimum anticipated effects size selected as 0.1 (smallest), the desired statistical power level selected as 0.8, the number of latent variables in the model being 10, the number of observed variables being 41, and the probability (alpha) level chosen as 0.05. The participants were gender, educational level and experience inclusive. Thus, 1103 (55.55%) of the participants were males and 969 (44.45%) were females with education level from diploma and above degree level. The working experiences of the participants within the companies started from 1 year up to 15 years and above.

Research Model

The researchers employed Maximum Likelihood with Robust (MLR) in Confirmatory Factor Analysis Model (CFA) only because, we are confirming underlying endogenous (five) factors and (one) exogenous factor by this analysis as portrayed by the model. The analysis objective is to verify whether the model fits the data perfectly or not and uncovers latent variable structure with statistical validity or not.

Maximum likelihood with robust standard errors (MLR) is a commonly used estimation method for structural equation models when observed data are continuous. MLR is an estimation method under normal theory maximum likelihood where the observed data are assumed to follow a multivariate normal distribution. The *robust* nature of MLR is in order to more accurately estimate standard errors. In this study, where MLR is estimated, the principal notion is to find parameters (θ) that maximize the likelihood function of the latent data. Moreover, the maximum likelihood fit function has been shown in (Muthén, 1994); (Ryu, 2014); (Bentler & Liang, 2011); (Liang & Bentler, 2004). The analysis utilizes R-packages and their functionalities to perform the data analysis. After all, to identify the factors contributing to enhancing the performance of companies, MLR estimate was primarily selected to present the results. We chose MLR estimate because it provides a consistent approach to parameter estimation problems especially in reliability analysis. Moreover, this MLR estimation method is employed in order to more accurately estimate standard errors.

In this research, five endogenous latent variables (viz., Raw materials and Financial Situations (RmFinSitua) is defined by four respective observed variables such as ARMD, LCRM, AWC, and SLPI; Human Capital Problem (Humcap) is defined by four respective observed variables such as EFSL, GATI, WOEQ, and FNEM; Competitive Environment (CompetEnvir) is defined by three respective observed variables such as PDCTA, ASIC, and USDC; Policy Environment (PolEnvir) is defined by four respective observed variables such as AIM, CLR, PRCB, and BRTD; Organizational Issues (OrgDevp) is defined by four respective observed variables such as EBMS, LC, CBLLF, and RESP.

Each abbreviated word here is elaborated above in the third paragraph under methodology section. In general, the model consists of 19 observed variables defining 5 endogenous latent variables which together define one exogenous latent variable “Company Performance” as a part of higher-order confirmatory factor analysis. In other words, an exogenous latent variable “Companies’ Performance” determines five endogenous latent variables, which in turn influences 19 observed variables collected through the questionnaire-based survey.

Findings and Discussions

This part provides the parameter estimates and their statistical validity and also how these observed variables have described numerical the value of each endogenous variable based on the field work conducted in Ethiopia on Textiles and Apparel Industries operating in Eastern Industrial Zone. It presents the results obtained in the Maximum Likelihood with Robust (MLR) estimate showing the factors that are directly influenced by the performance of the targeted companies.

Findings

Parameter estimates of cpMod_MLR

When observing the "Parameter estimates," it becomes evident that the obtained solution is devoid of anomalies, such as disallowed or incorrect estimates (negative variances), and extremely high or low standard errors ("std. err"). In the "estimate" column, non-standardized factor loading coefficients are presented, each accompanied by its corresponding standard error ("std. err"). The direction of the coefficient (positive or negative) signifies the nature of the anticipated relationship between the indicator and the latent variable upon which it relies.

For instance, considering the non-standardized factor loading of item Low Cost of Raw materials (LCRM), which is 0.869, this indicates that a one-unit rise in the latent variable "Raw Materials and Financial Situation (RmFinSitua)" correlates with a 0.869 unit increase in item LCRM. The "z-value" column, determined by dividing the "estimate" by its "std.err," facilitates the evaluation of the statistical significance of the factor loading. As an illustration, the z-value for the factor loading of the item LCRM equates to 34.400 (i.e., 0.869/0.025 = 34.400).

It is discernible that the factor loadings for other items, Availability of Working Capital (AWC), and Sufficient Loan Providing Institutions (SLPI) are equally significant, as their respective statistics surpass the threshold of 1.96. Table 1 also includes the depiction of a 95% confidence interval for the parameter estimates.

Table 1: Parameter estimates for cpMod_MLR

Latent Variables:	Estimate	Std.Err	z-value	P(>|z|)	ci.lower	ci.upper	Std.lv	Std.all
RmFinSitua=~								
ARMD	1.000				1.000	1.000	0.787	0.777
LCRM	0.869	0.025	34.400	0.000	0.819	0.918	0.684	0.672
AWC	0.739	0.026	28.049	0.000	0.688	0.791	0.582	0.572
SLPI	0.803	0.024	33.872	0.000	0.757	0.850	0.632	0.662
HumCap=~								
EFSL	1.000				1.000	1.000	0.547	0.568
GATI	1.352	0.043	31.484	0.000	1.268	1.436	0.739	0.710
WOEQ	1.555	0.048	32.579	0.000	1.462	1.649	0.85	0.763
FNEM	1.576	0.048	32.57	0.000	1.481	1.671	0.861	0.778
CompetEnvir=~								
PDCTA	1.000				1.000	1.000	0.679	0.619
ASIC	1.153	0.040	28.669	0.000	1.075	1.232	0.784	0.713
USDC	1.173	0.039	30.436	0.000	1.097	1.248	0.797	0.769
PolEnvir=~								
AIM	1.000				1.000	1.000	0.770	0.732
CLR	1.002	0.031	32.456	0.000	0.941	1.062	0.771	0.666
PRCB	0.795	0.030	26.215	0.000	0.736	0.855	0.612	0.568
BRTD	1.125	0.029	38.321	0.000	1.068	1.183	0.866	0.770
OrgDevp=~								
EBMS	1.000				1.000	1.000	0.917	0.786
LC	0.939	0.023	41.294	0.000	0.895	0.984	0.861	0.765
CBLLF	0.914	0.023	39.591	0.000	0.869	0.959	0.838	0.730
RESP	0.979	0.022	43.729	0.000	0.935	1.023	0.898	0.796
CompPerf=~								
RmFinSitua	1.000				1.000	1.000	1.000	1.000
HumCap	0.694	0.020	34.398	0.000	0.655	0.734	1.000	1.000
CompetEnvir	0.863	0.029	30.109	0.000	0.807	0.919	1.000	1.000
PolEnvir	0.978	0.026	37.103	0.000	0.927	0.030	1.000	1.000
OrgDevp	1.165	0.027	43.897	0.000	1.113	1.217	1.000	1.000

Source: *Authors*

In other words, one unit increase in Raw Materials and Financial Situation (RmFinSitua) will result in a Low Cost of Raw materials (LCRM) increasing by 0.869 units, Availability of Working Capital (AWC) increasing by 0.739 units, and Sufficiency of Loan Providing Institutions (SLPI) increase by 0.803. Overall, as is expected latent variable RmFinSitua has positive impact over its observed variables. Similarly, for the latent variable "Human Capital (HumCap)", all the items (Ease of Finding Skilled Labor (EFSL), Gaining Access to Technology and Information on available techniques (GATI), Working with Old Equipment (WOEQ), and Familiarity with New Equipment/Machines (FNEM)) have positive relationships between the indicator and the latent variable upon which they depend with statistically significant z-values. In other words, a one-unit increase in human capital problems results in more than one-unit increase in items such as EFSL (reference variable = 1), GATI (1.352 units), WOEQ (1.555 units), and FNEM (1.576 units). The same interpretation goes by with the latent variable "Competitive Environment (CompetEnvir)", the items, Public demands on Companies of textiles and apparel (PDCTA) (reference variable = 1), Availability of Strong International Competitors (ASIC) (1.153 units), and Unavailability of Strong Domestic Competitors (USDC) (1.173 units) have a statistically significant positive relationship, indicating as the competitive environment improves positively it impacts likewise on the dependent items. It can be observed that the same pattern is apparent with "Policy Environment (PolEnvir)" and that all its observed items Access to International Markets (AIM) (reference indicator = 1, Cost of Licensing and Registration (CLR) (1.002 units), Procedure for Registering and Commencing Business (PRCB) (0.795 units), and Bureaucratic Red-tapism (Delay) (BRTD) (1.125 units) have a statistically significant positive relationship. And the fifth latent variable "Organizational Development (OrgDev)" as well shows a positive relationship with its dependent items such as Entrepreneurial & Business Management Skills (EBMS) (reference indicator = 1), Leadership Capability (LC) (0.939 units), Cooperation between Local and Large Firms (CBLLF) (0.914 units), Regular Evaluation of the Staff's Performance (RESP) (0.979 units).

Variances of Items and their residual variances of cpMod_MLR

The following Table 2 demonstrates common variance and unique variance extracted by each factor loading. These calculations are based on the standardized values of the factor loadings.

Table 2: Variances of Observed Variables for cpMod_MLR

RefIndica (X_i)	Std.Dev of X_i (σ_{xi})	Variance of X_i (σ^2_{xi})	Std.load of X_i (λ)	$(Std.load)^2$ (λ^2)	Var of LV (Variance of common factor)	Due to Err (Variance of unique factor)
ARMD	1.01	1.0201	0.777	0.604	0.616	0.396
LCRM	1.02	1.0404	0.672	0.452	0.470	0.548
AWC	1.02	1.0404	0.572	0.327	0.340	0.673
SLPI	0.96	0.9216	0.662	0.438	0.404	0.562
EFSL	0.83	0.6889	0.658	0.433	0.298	0.567
GATI	1.04	1.0816	0.71	0.504	0.545	0.496
WOEQ	1.11	1.2321	0.763	0.582	0.717	0.418
FNEM	1.11	1.2321	0.778	0.605	0.746	0.395
PDCTA	1.1	1.21	0.619	0.383	0.464	0.617
ASIC	1.1	1.21	0.713	0.508	0.615	0.492
USDC	1.04	1.0816	0.769	0.591	0.640	0.409
AIM	1.05	1.1025	0.732	0.536	0.591	0.464
CLR	1.16	1.3456	0.666	0.444	0.597	0.556
PRCB	1.08	1.1664	0.568	0.323	0.376	0.677
BRTD	1.13	1.2769	0.77	0.593	0.757	0.407
EBMS	1.17	1.3689	0.786	0.618	0.846	0.382
LC	1.13	1.2769	0.765	0.585	0.747	0.415
CBLLF	1.15	1.3225	0.73	0.533	0.705	0.467
RESP	1.13	1.2769	0.796	0.634	0.809	0.366

Source: Authors

Finally, all observed variables' residual variances are statistically significant, which can be noted from the variances in Table 3. Also, the estimated non-standardized coefficient value (0.619) for the variance of the exogenous latent variable company performance (compPerf) was also statistically significant.

Table 3: Residual variances (of Observed variables) estimates for cpMod_MLR

Variances:	Estimate	Std.Err	z-value	P(>|z|)	ci.lower	ci.upper	Std.lv	Std.all
ARMD	0.408	0.014	28.371	0.000	0.379	0.436	0.408	0.397
LCRM	0.568	0.018	31.785	0.000	0.533	0.603	0.568	0.549
AWC	0.697	0.021	33.041	0.000	0.656	0.739	0.697	0.673
SLPI	0.513	0.016	31.419	0.000	0.481	0.545	0.513	0.562
EFSL	0.390	0.013	29.678	0.000	0.364	0.416	0.390	0.566
GATI	0.537	0.017	30.715	0.000	0.503	0.572	0.537	0.496
WOEQ	0.519	0.017	30.876	0.000	0.486	0.552	0.519	0.418
FNEM	0.484	0.016	31.054	0.000	0.454	0.515	0.484	0.395
PDCTA	0.742	0.023	32.263	0.000	0.697	0.787	0.742	0.616
ASIC	0.595	0.019	30.828	0.000	0.558	0.633	0.595	0.492
USDC	0.440	0.014	31.615	0.000	0.413	0.467	0.440	0.409
AIM	0.515	0.016	32.402	0.000	0.483	0.546	0.515	0.465
CLR	0.746	0.024	31.677	0.000	0.700	0.792	0.746	0.556
PRCB	0.788	0.023	33.648	0.000	0.743	0.834	0.788	0.678
BRTD	0.517	0.017	29.947	0.000	0.483	0.551	0.517	0.408
EBMS	0.518	0.018	28.801	0.000	0.483	0.554	0.518	0.382
LC	0.527	0.018	29.951	0.000	0.493	0.562	0.527	0.415
CBLLF	0.617	0.021	29.494	0.000	0.576	0.658	0.617	0.468
RESP	0.467	0.016	28.797	0.000	0.435	0.498	0.467	0.367
CompPerf	0.619	0.028	21.839	0.000	0.564	0.675	1.000	1.000

Source: Authors

Variances of Latent Variables of cpMod_MLR

The variances of the latent variables warrant careful consideration. A proportion of the variance associated with the reference indicator is allocated to the latent variable it serves as a reference for. To elaborate, for RmFinSitua (LV1), the variance equals 0.616. Similarly, a fraction of the variance linked to the reference indicator is transferred to the corresponding latent variable. In this instance, ARMD's variance is 1.02, and its standardized factor loading by the latent factor stands at 0.777.

Upon squaring this factor loading (0.777^2 = 0.603), it signifies that approximately 60% of the item's variance (ARMD) can be attributed to the latent factor it depends upon. In practical terms, this implies that 60.3% of ARMD's variance (which equates to 1.02) is shifted to the latent variable RmFinSitua (i.e., 60.3% of 1.02 = 0.616).

Similarly, 43.29% of the variance of item EFSL (i.e., 43.29% of 0.69 = 0.298) is transferred to the "HumCap (LV2)". 38.31% of the variance of item PDCTA (i.e., 38.31% of 1.21 = 0.464) is transferred to the (LV3) "CompetEnvir". 53.6% of the variance of item AIM (i.e., 53.6% of 1.10 = 0.591) is transferred to the (LV4) "PolEnvir". And finally, 61.8% of the variance of the item EBMS (i.e. 61.8% of 1.36 = 0.846) is transferred to the (LV5) "OrgDevp". All these values are presented in Table 4.

Table 4: Variances of latent variables for cpMod_MLR

LV	RefIndica (ri)	Std.Dev of ri (σ_{ri})	Variance of ri ri (σ^2_{ri})	Std.load of (λ)	(Std.load)^2 (λ^2)	Var of LV (Variance of common factor)	Due to Err (Variance of unique factor)
RmFinSitua	ARMD	1.01	1.0201	0.777	0.603729	0.615863953	0.396271
HumCap	EFSL	0.83	0.6889	0.658	0.432964	0.2982689	0.567036
CompetEnvir	PDCTA	1.1	1.21	0.619	0.383161	0.46362481	0.616839
PolEnvir	AIM	1.05	1.1025	0.732	0.535824	0.59074596	0.464176
OrgDevp	EBMS	1.17	1.3689	0.786	0.617796	0.845700944	0.382204

Source: Authors

As far as R^2 ("R-square") is concerned, it is the quality of the indicator as a representative of the latent variable on which it depends. By squaring the standardized factor loading (λ^2) coefficient R^2 the true variance of each item can be obtained. This is the fraction of variance explained by the common factor. The following Table 5 presents the R^2 values output of observed variables.

Table 5: R^2 values output of observed variables for cpMod_MLR

Observed Variables	R^2: Estimate	Observed Variables	R^2: Estimate	Observed Variables	R^2: Estimate
ARMD	0.603	FNEM	0.605	PRCB	0.322
LCRM	0.451	PDCTA	0.384	BRTD	0.592
AWC	0.327	ASIC	0.508	EBMS	0.618
SLPI	0.438	USDC	0.591	LC	0.585
EFSL	0.434	AIM	0.535	CBLLF	0.532
GATI	0.504	CLR	0.444	RESP	0.633
WOEQ	0.582				

Source: Authors

The other part of the total variance (equal to $1 - \lambda^2$) is due to the error. For example, a standardized value of λ^2 for ARMD = 0.603, signifies that 60% of the variance of the concerned item is determined by the common factor, and the rest (1 – 0.60 = 0.40), or 40%, is determined by the unique factor (for example, measurement errors). These factorial factor loading coefficients express the degree of convergence between the latent variables and their indicators. They make it possible to estimate the quality of the relationship between an item and the factor on which it depends (i.e., validity coefficient). We can see that the highest R^2 is related to item ARMD, considered to be the reference item as it explicitly refers to 'RmFinSitua' ("Raw Materials and Financial Situation").

The variance of the latent variable VAR(LV) λ_{ri} is obtained as follows by using the formula.

$VAR(LV) = (\lambda_{ri})^2\sigma_{ri}$

Where:

- λ_{ri} Refers to the factor loading of the reference indicator (ri)

- σ_{ri} refers to the variance of the reference indicator (which is obtained by squaring the standard deviation of the reference indicator from descriptive statistics of the original data.)

Certain psychometricians (e.g., [COM 92, TAB 07]) suggest a criterion of selecting items with R^2 exceeding 0.40 (which corresponds to a factorial factor loading greater than 0.63). Adhering to this guideline, it is evident that all reference items comfortably surpass the 0.40 threshold. On referring to Table No. 5, it becomes evident that the latent variables exhibit R^2 values as follows: "RmFinSitua" possesses 0.603, "HumCap" registers 0.432, "CompetEnvir" attains 0.384, "PolEnvir" reaches 0.535, and finally, "OrgDevp" acquires 0.618. These R^2 values are notably satisfactory from an empirical perspective. The tested model (cpMod_MLR) has converged successfully with the following satisfactory reliability measures, therefore it is concluded that no more requirement to use modification indices to improve model fit.

Reliability Measures of cpMod_MLR

Table 6 lists the output values of four reliability coefficients (i.e. (Cronbach, 2016) omega, (Raykov, 2001) omega, (Bentler, 2009) omega & (McDonald, 2013) omega are close to each other for the model cpMod_MLR. The value of these indices ranges from 0(zero reliability) to 1.00 (excellent reliability). Reliability increases closer to the value of 1, with an acceptability threshold of 0.70. Since all these indices are well above the threshold value, it can be concluded that the latent variables demonstrate sufficient reliability and internal consistency of each measure made up of all the items.

Table 6: Reliability Coefficients of cpMod_MLR

Latent Variables	**Reliability Coefficient**				
	alpha	**omega**	**omega2**	**omega3**	**avevar**
RmFinSitua	0.7681201	0.7673164	0.7673164	0.761818	0.4550344
HumCap	0.8172396	0.8230662	0.8230662	0.8199143	0.5446401
CompetEnvir	0.7431399	0.7418383	0.7418383	0.7388076	0.4904469
PolEnvir	0.7751542	0.7804618	0.7804618	0.7825843	0.4741585
OrgDevp	0.8528878	0.8529009	0.8529009	0.8523093	0.5920535

Source: Authors

Finally, Table 7 presents AVE and Composite reliability values to demonstrate convergent validity. AVE should be higher than 0.5. However, the value of 0.4 is acceptable due to the condition that if the AVE value is less than 0.5, but composite reliability is higher than 0.6, the convergent validity of the construct is acceptable (Fornell & Larcker, 2012). According to this rule, all constructs have convergent validity crossing threshold values. The constructs RmFinSitua (AVE < 5 = 0.455 but has a composite reliability value > 0.6 (as 0.762), competEnvir (AVE < 5 = 0.49 but has a composite reliability value > 0.6 (as 0.739), and PolEnvir (AVE < 5 = 0.474 but has a composite reliability value > 0.6 (as 0.783), to confirm the construct acceptability.

Table 7: Composite Reliability and AVE of cpMod_MLR

Latent Variables	**compRelSEM(cpModO_MLR)**	**AVE(cpModO_MLR)**
RmFinSitua	0.762	0.455
HumCap	0.820	0.545
CompetEnvir	0.739	0.490
PolEnvir	0.783	0.474
OrgDevp	0.852	0.592

Source: Authors

Normality of residuals from the model cpMod_MLR

Equally significant is the assessment of whether residuals adhere to a normal distribution. To validate the assumption of residual normality, Q-Q plots (quantile-quantile plots) are commonly employed. The interpretation of a Q-Q plot is remarkably straightforward. The graph depicts the actual data on the X-axis and the theoretically normally distributed data on the Y-axis.

Each individual data point is denoted by black circles, while the solid line illustrates the ideal distribution if the data were perfectly normal. Consequently, the proximity of the observed data to the solid line indicates their degree of conformity to the normal distribution. The graph also includes a 95% confidence interval for the line. When data points fall within this interval, they are considered to adhere to the normal distribution. In Graph 1 below, the residual plot (qqplot) of the cpMod_MLR model indicates a remarkably close adherence of the data to the normal distribution.

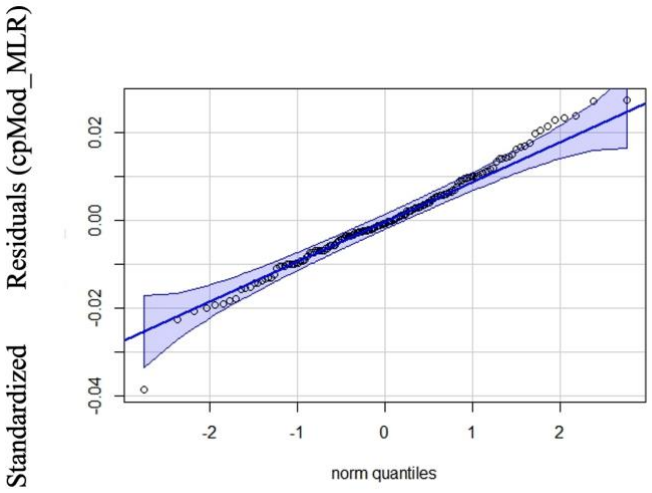

Figure 1: Residual qqPlot of cpMod_MLR; *Source:* Authors

Finally, figure 2 demonstrates the path diagram of CFA model cpMod_MLR, in which path coefficients and residual covariances are displayed.

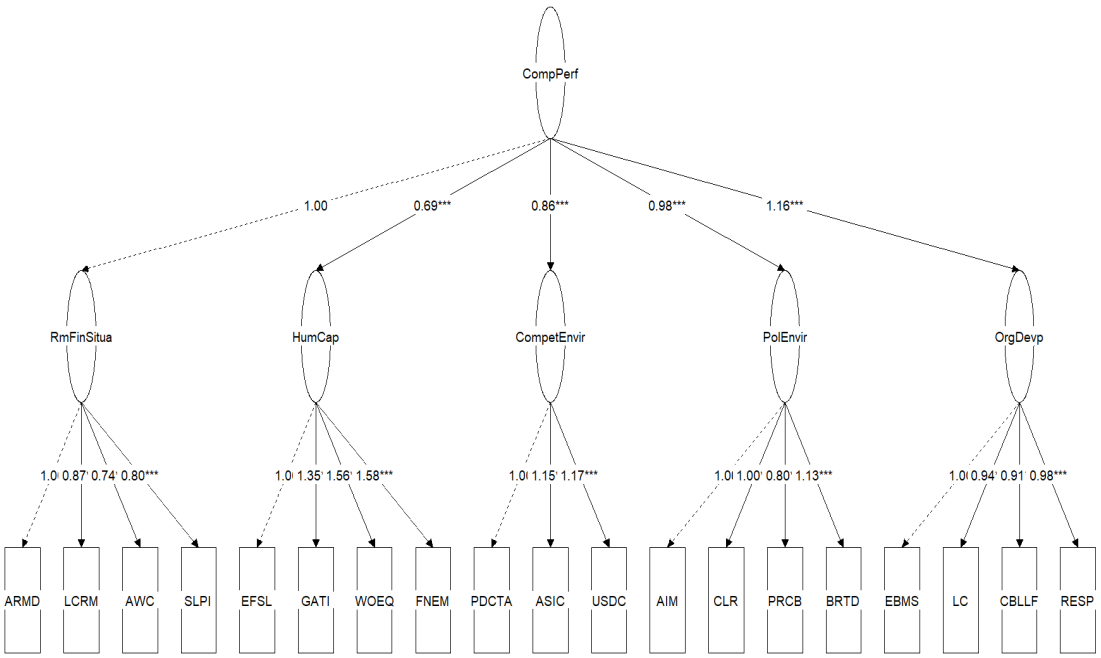

Figure 2: Path Diagram of cpMod_MLR; *Source:* Authors

Discussions

Each of the five internal latent variables plays a role in defining an external latent variable termed "Company Performance (CompPerf)." This is because the factors encompassing 'Raw Materials and Financial Situations (RmFinSitua)', 'Human Capital (HumCap)', 'Competitive Environment (CompetEnvir)', 'Policy Environment (PolEnvir)', and 'Organizational Development Issues (OrgDevp)' are anticipated to be impacted, either positively or negatively, by companies' performance. The outcomes indicate that all these five internal latent variables are significantly and positively influenced by the external latent variable, 'Company Performance.'

To elaborate, a one-unit enhancement in Companies' Performance yields a favorable impact on RmFinSitua (with a reference indicator set at 1). The latent variable HumCap experiences a rise of 0.694 units, while CompetEnvir displays an increase of 0.863 units. Moreover, PolEnvir demonstrates an improvement of 0.978 units, and OrgDevp exhibits growth of 1.165 units. It is important to note that these coefficients represent unstandardized values. However, the standardized values for all these variables are standardized to 1.

Notably, it becomes apparent that all factor loadings are not only positive but also exceed the threshold of 0.40 (with the maximum loading at 0.796 by RESP and the minimum at 0.568 by PRCB). This minimum value serves as a requirement to assess the significance of the connection between an item and the factor upon which it relies.

According to the results, (See Table 1) it is evident that the success of the companies relies on the internal latent variables geared by their observed variables which have shown positive relationship with companies' performance depicting that one unit increase or decrease results in improved or poor performance level. Moreover, as this research is not the last for investigating the performance of textiles and apparel industries, a lot have to be done with support of policy makers in order to come up with better findings for similar studies in the same sector or other sectors regardless of their geographical locations because without policy makers' encouragement, researchers alone bring no fruitful result for the needed development.

Conclusions

Basically, the success and/or failure of any organization depend on the actors contributing in the day-to-day routines by the facilitating agents within or outside the organization. In this research, different factors have been chosen to examine their conditions in the performance of the target textiles and apparel companies in the Eastern Industrial Zone in Ethiopia. As the purpose of this article is to identify the factors which may influenced by the performance of the companies, authors investigated five latent variables along with their observed variables for the analysis purpose.

Thus, it is revealed that latent variables such as 'Raw Materials and Financial Situations (RmFinSitua)', 'Human Capital (HumCap)', 'Competitive Environment (CompetEnvir)', 'Policies Environment (PolEnvir)', and 'Organizational Development Issues (OrgDevp)' have outcomes which indicate that all are significantly and positively influenced by the dependent variable, 'company performance.'

In this case, as the results of the parameter estimate indicate, when single improvement is observed in Company's Performance, on the other hand, it implies that there is a favorable impact on the latent variable, "Raw Materials and Financial Situations (RmFinSitua)" with reference indicator set at 1). Again, when we look at the latent variable, Human Capital (HumCap), it's found that it experiences a rise of statistically significant units but the least compared to others, such as Competitive Environment (CompetEnvir) has an increase of some units, followed by Policies Environment (PolEnvir) that demonstrates an improvement units greater than policies environment, and Organizational Development (OrgDevp) that exhibits growth of above 1 unit compared to all the latent variables.

Therefore, in this analysis, as the results above indicate, we can conclude that the existence of these latent variables has significant and positive impact on the success of the companies. So, if companies fail to perform well as anticipated, it might be because of the missing of any possible latent variable here along with their observed variables acting as the facilitators for their performance because their roles are directly attached to the routines of these companies like car engines.

Limitations and Recommendations for Future Research

As there is no 100% perfection always, this research has limitations that should be acknowledged. At the primary level, the focus was only relying on survey data without considering the secondary data for examining the financial aspect of the companies. Secondly, the geographical aspect which was focusing on Ethiopia limits the generalizability of the findings to other nations because what is applicable in Ethiopia may not be applicable in other countries due to work culture, technological, economic, political, and other social factors acting as the barriers for applying the Global Value Chains approach in the system. Moreover, Ethiopia's working environment may not be appropriate because it may lack some infrastructures like other advanced countries.

To address the mentioned limitations, this study recommends the following basic points for future: Other researchers should use longitudinal data to address the variations in revenues collections by the companies in order to see the gap in some specific duration; they should study the performance of other sectors applying the Global Value Chains (GVCs) approach in their companies instead of repeating the same sector; Managers of the Companies need to take actions and design better strategies for improving their performance levels following the identified factors influencing the performances of their companies and Global Value Chains; Policy Makers should encourage researchers and incorporate the findings into their policy design agenda to adopt the newly suggested approach.

Finally, in this regard, this research article provides additional insights on other untouched aspects that affect the performances and underscores the need for considering multiple factors to enhance the performance of the companies.

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Appendix

Survey Questionnaires

"The Factors Influencing Companies' Performance and Global Value Chains (GVC) on Textiles and Apparel Industries in Ethiopia: The Case of Eastern Industrial Zone"

By Gnigwo Gala Gnigwo

Part One: Instruction

General Instruction for Data Collector(S)

Researcher and Enumerator(S)

- Make an acquaintance with the respondent before distributing the questions papers by first introducing yourself to the respondent, i.e., your name, the institution of the study; and tell him/her the purpose and objective of the study so as to create awareness and give thanks in advance.
- Inform the respondent that his information confidentiality will be maintained by the researcher to feel free to respond without fear.
- Allow the respondent to fill the questionnaires freely and if possible, give him time to think more for good responses and ask him/her to avoid bias.
- Guide the respondent to put the answer of each question according to the given space or based on the nature of the question and response alternatives.

SECTION ONE

1. Respondent's Brief Profile

a. Name of Industry's Informant (Optional): _____

b. Gender(Sex): Male: ☐ Female: ☐

c. Age:_____

d. Code No.(TBGBR): _____ Date: ------/----- 2020-2021

e. Name of your Company:_____

f. Department within the Company/Industry: _____

g. Informant's Position in the Company: _____

h. Address of the Organization:

City/Town: Dukem Special Area Name: Dukem (Eastern Industrial Park/Zone)

District/Woreda: _____ Kebele (Local Area): _____

i. Company ownership: Public (State-owned): ☐

Private ☐ Other ☐

j. **Educational level:** Put a "Tick Mark" at the right side

Educational level	Tick Mark as appropriate
PhD	
MSc/MA	
BSc/BA	
Other, specify	

k. **Experience of Respondents:** Put a "Tick Mark" at the right side

Work Experience	Tick Mark as appropriate
1-5 Years	
6-10 Years	
11-15 Years	
Above 15 Years	

SECTION TWO

2. INDICATORS OF COMPANY'S PERFORMANCE

(To be filled by the sampled respondents within the company)

This section requires putting a tick mark in a box under each given scale as an alternative to the attribute from the left side of the scales columns in the table below based on your own opinion about Textiles and Apparel Industries in the Eastern Industrial Zone in Dukem, vicinity to the capital city, Addis Ababa, Ethiopia and other sequel issues.

The table below indicates factors that affect companies' performance and the severity of influence are measured in terms of the scales such as 1 for not high, 2 for less high, 3 for moderately high, 4 for high and 5 for very high. Therefore, you are kindly requested to indicate your opinion/view or experience on the following issues about the Textiles and Apparel Industries operating in the Eastern Industrial Zone-Ethiopia.

Scales:

1= Not High; 2= Less High; 3= Moderately High; 4= High; 5= Very High.

No.	**Attributes**	**Scales**				
	Factors that affect Textiles and Apparel Industries	**1**	**2**	**3**	**4**	**5**
A	**Input constraints**					
	Availability of raw materials domestically (ARMD)					
	Low cost of raw materials (LCRM)					
B	**Finance**					
	Availability of working capital (AWC)					
	Sufficient loan providing institutions (SLPI)					
C	**Labor Market**					
	Finding skilled labor					
D	**Equipment & Technology**					
	Gaining access to technology and information on available techniques (GATI)					
	Working with old equipment/machines (WOEQM)					
	Familiarity with new equipment/machines (FNEM)					
E	**Domestic Demand**					
	Public demands on Companies of textiles and apparels (PDCTA)					
F	**Market Competitiveness**					
	Availability of strong domestic rivalries (ASDR)					
	Availability of strong international competitors (ASIC)					

	Unavailability of strong domestic competitors (USDC)					
G	**Regulatory Constraints**					
	Cost of licensing and registration (CLR)					
	Procedure for registering and commencing business (PRCB)					
	Bureaucratic Red tapism (delay) (BRTD)					
H	**Managerial Constraints**					
	Entrepreneurial & Business Management Skills (EBMS)					
	Leadership capability (LC)					
I	**Institutional Constraints**					
	Cooperation between local and large firms (CBLLF)					
	Regular evaluation of the staffs' performance (RESP)					

Above all, your suggestion is very fruitful for the success of this research work and thank you so much for everything.

Suggestion:

……
……