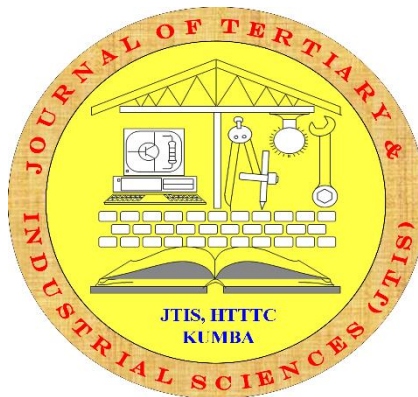


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Foreign direct investment and structural transformation in the CEMAC sub-region

By

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Abstract

This article examines the effects of foreign direct investment (FDI) on structural transformation using panel data from 6 Countries in CEMAC sub region. It employs the Pooled Mean Group estimation technique, which is appropriate for drawing conclusions from dynamic heterogeneous panels by considering long-run equilibrium relation covering the period from 1985-2018. Structural transformation is bundled by many indicators but due to lack of data, in our analysis we will use export sophistication index and Export upgrading. From results, FDI has positive and a significant effect on export sophistication and export upgrading in CEMAC sub region. Beside, absorptive capacity items of both human and physical capital are prerequisites for CEMAC to benefit from FDI technological deepening, especially when we want to capture the spill over effect of FDI in terms of structural transformation. Therefore, special consideration should be given to FDI motivated by manufacturing exports, as well as policies that boost absorption capacity and enable labour mobility in CEMAC sub region.

Keywords: export sophistication index, foreign direct investment, structural transformation, Pooled Mean Group, CEMAC

JEL Classification: O55; F 21; L60;

1. Introduction

Structural transformation is the lifeblood that allows development to be accomplished in developing countries (Chenaf-Nicet, 2019; Khan, 2020). Countries that have undergone structural transformation have been able to escape poverty and become prosperous (Marjanovic, 2015). Therefore, Foreign Direct Investment (FDI) is one of the most effective tools for achieving structural transformation in developing countries, as it allows them to break the cycle of poverty and address resource scarcity (Hauge, 2019). In the short term, FDI can assist host countries in accumulating physical capital by increasing income through large-scale job creation, increasing foreign currency and tax revenue, expanding the global market opportunities, and finally influencing infrastructure and the business environment, all of which are required inputs for structural transformation (Mamba et al., 2020). FDI contributes, usually in the long run, to structural transformation of the host economy through the development of productive capabilities and industrialization through technology transfer and managerial skills, market and technology linkages to the host country, shifting labour and other resources from low- to high-productivity sectors, competitive pressure on domestic companies, and human capital development (Gui-Diby & Renard, 2015).

The positioning of this article on the effect of foreign direct investment (FDI) on structural transformation in CEMAC sub region is motivated by three main factors in the scholarly literature, namely: (i) the relevance of foreign direct investment in driving contemporary economic development outcomes (ii) the importance of sophistication of exported product for the overall process of economic development; and (iii) gaps in present-day economic development literature. These factors are discussed in return.

On the one hand, structural transformation is one of the contemporary issues of the ongoing policy debate in development economics and Foreign Direct Investment (FDI) as a driver of economic development is part of topmost debates around the world (Mühlen and Escobar, 2020; Megbowon et al., 2019; Qobo and Pere, 2018; Liu et al., 2017).

On the other hand, when compared to other regions of the world, the CEMAC sub region in particular is substantially lagging in terms of development. The comparatively slow progress towards structural transformation in the continent has been traceable to a number of factors, including (a) poor skills, infrastructure and investment climate (Page 2012; Gui-Diby and Renard 2015) and (b) shortage of the investment capital required to fund the industrialisation process (Tuomi, 2011; Darley, 2012; Tibebe and Mollick, 2017; Nukpezah and Blankson, 2017; Asongu and Odhiambo 2020; Asongu et al., 2019).

Finally there is currently no study that has investigated the effect of FDI on structural transformation in the CEMAC sub region. Hence, the positioning of this study departs from the broader contemporary literature on structural transformation in Africa. The

strand of the literature closest to this positioning has focused on inter alia: For instance, studies conducted by Gui-Diby and Renard (2015), Samouel and Aram (2016), Mensah et al. (2016), Jie and Shamshedin (2019), Mamba et al. (2020), Oduola et al. (2022), and Muller (2021) are limited to Africa; others such as Muhlen and Escobar (2020), Thirion (2020), Montes and Cruz (2020), and Maroof et al. (2019) are corresponding to Asia; and studies of Topcu (2016), and Chenaf-Nicet (2019) addressed the issue in developing countries, but they focused on higher middle-income countries. We improved the extant literature by focusing on structural transformation as a macroeconomic outcome owing to the growing relevance of CEMAC structural transformation policy and academic circles (Asche and Grimm, 2007; Tchamyou, 2017; Diao et al., 2017; Ssozi et al., 2019).

To make this assessment, structural transformation will be measured using different proxies. The motivation for using these proxies as indicators is based on evolving paradigms in the conception, definition and measurement of structural transformation (Lall et al., 2006, Hausmann et al., 2011; Weiss and Zhang, 2006). We will therefore use the export sophistication index¹ which measures greater development benefits to exporting countries to capture structural transformation (Lall et al., 2006; Hausmann et al., 2011; Weiss and Zhang, 2006) as against those in the literature that concentrated on manufacturing value added and industrial labour at the secondary sector using data ranging from 1985 to 2018. Looking at the structural transformation policy of most countries in the CEMAC sub region, they adopt models that ease the transformation of natural resources like the case of Congo and Equatorial Guinea while in Cameroon, it is partially based on this policy of transformation but most especially the Agro-industrial policy.

The rest of the study is structured as follows: Section 2 Literature review, in section 3 data and methodology are covered; Section 4 presents the empirical results and discussion. Section 5 concludes with some policies recommendations.

2. Literature review

The theoretical and empirical frameworks on FDI and structural transformation are presented in this section

2.1 FDI as a driver of structural transformation: an overview of theoretical work

The literature on the effects of FDI in the development of host countries is mixed and can be gathered in double fold. Unlike the first analysis that favours the effects of FDI on economic development (Bumann et al., 2013; Findlay, 1978; Lipsey et al., 2013; Mainguy, 2004; Tiwari & Mutascu, 2011), the second one does not only support the conditional effect

¹ Export sophistication (XS) is defined as a more technology-intensive exports, implying development benefits to exporting countries (Lall et al., 2006; Jerreau and Poncet, 2012).

but also the negative outcome of FDI in the development of host countries (Borensztein et al., 1998; Sothan, 2017). Thus, for the first analysis, the new technologies introduced by FDI in developing countries can spread from the subsidiaries of multinational firms to national companies (Findlay, 1978) allowing host countries to increase their productivity of both capital and work (Bumann et al., 2013). FDI has a positive effect on the economic growth and improves population well-being with significant effects on poverty reduction (Dollar & Kraay, 2000; Mainguy, 2004; Tiwari & Mutascu, 2011). In the same vein, Borensztein et al. (1998) argue that FDI positively affects national investment and according to De Soysa and Oneal (1999), FDI encourages domestic investment. Because of their contribution to technology and skills, which are very important in the industrialization process, FDI constitutes a vector of the industrial development which is the first step to achieve sustainable development (Jie & Shamshedin, 2019). Multinational corporations effectively contribute to economic development when they promote the organization of the economic structures of countries with their comparative advantages determined by factor endowments (Pineli et al., 2019). Thus, through FDI, multinational firms shift activities from one sector to another in different countries (Mühlen & Escobar, 2020) and can stimulate the reallocation of resources towards high-productivity sectors and thereby contribute to structural transformation. Resources may be concentrated in a non-productive sector. In this context, FDI presents itself as an effective solution for mobilizing these resources towards sectors with high added value. Since multinational firms are generally high-productivity companies, the remuneration of employees is relatively high (Bernard et al., 2012) leading to the reallocation of labour towards high productive sectors. Some believe that the positive effect of FDI on the economic development of a country depends on its absorption capacity with an emphasis on financial development (Bumann et al., 2013; Omran & Bolbol, 2003), the human capital (Borensztein et al., 1998). In this context, Borensztein et al. (1998) argue that the stock of human capital is essential for determining the magnitude of the effects of FDI on growth. For them, in countries where the level of human capital is very low, the effects of FDI are negative. According to Chudnovsky and Lopez (1999), technology transfers in developing countries depend on the local absorption capacity, the adequacy of this technology to the needs of the country, and the skills of employees. Therefore, human capital finds its fundamental role in the transfer of technologies. FDI is then attracted to countries that have a high intensity of human capital (Barro, 1994) with the developed infrastructures. With the labour division, developing countries are tempted to be specialized in tasks with low technological capacity that do not require research and development. The innovation which is the fundamental driving force of structural transformation remains embryonic and does not favour the reallocation of the workforce towards high-productivity sectors in developing countries which leaves the CEMAC countries indifferent.

Theoretical models developed by Markusen and Venables (1999) analyse this impact in terms of the number of enterprises, and can be used to analyse the impact on industrialization defined in terms of GDP or value added, while the second model can be

used for the employment-oriented indicator. The model developed by Rodriguez-Clare's (1996) analyses the above-mentioned impact in terms of employment, specifically the "ratio of employment generated in upstream industries through the demand for specialized inputs to the labour force hired directly by the firm", but these models are limited. Chenery (1960) and H. Chenery and Syrquin (1975) pointed out that structural transformation is mainly characterized by (i) per capita income increase, (ii) accumulation of capital, (iii) structural change in production, demand, demography, income distribution, and international trade.

2.2 Empirical evidence for the effects of FDI on structural transformation

Empirically, Mühlen and Escobar (2020) examine the effect of FDI on structural transformation in Mexico. The results revealed that FDI contributes positively to structural transformation in Mexico. This effect stems from flows of FDI channelled into the industrial sector which favours the reallocation of labour among the sectors of activity in Mexico.

Pineli et al. (2019) examine the role of FDI, multinational firms and structural transformation in developing countries. The results suggested the existence of a heterogeneous effect of FDI on the structural transformation of different countries. Unlike other countries, the findings from Pineli et al. (2019) show a positive effect of FDI on the share of employment in modern industries in some countries. In addition, the effect of FDI on structural transformation depends on the level of development of each country and the type of FDI received. In the early stages of development, a higher concentration of FDI in the manufacturing sector reinforces the effect of FDI on structural transformation, while in the later stage, FDI is necessary for the modern non-manufacturing sector (Pineli et al., 2019). The financial development, corruption and trade openness (TO) are the factors that motivate the difference in the effect of FDI on the structural transformation of countries (Pineli et al., 2019).

Wonyra and Efogo (2020) studied the relationship between FDI and trade in services in 34 countries in sub-Saharan Africa from 2005 to 2015. According to the authors, FDI positively affects exports of services when the institutional indicators are of good quality. In addition, an increase in FDI is positively correlated with imports of services in Sub-Saharan Africa.

A comparative study of the effect of FDI on the industrial development of the Philippines, Malaysia and Thailand were carried out by Montes and Cruz (2020). The results showed that FDI effectively contributes to the industrial development in Malaysia and Thailand compared to Philippines. Analysing the contribution of FDI to industrialization in Ethiopia, Jie and Shamshedin (2019) used an autoregressive model over a period from 1992 to 2017.

According to Wei (1996), FDI positively contributes to industrial growth through the accumulation of physical capital between 1988 and 1990. Some studies highlight the better performance of enterprises with foreign capital compared to Chinese domestic enterprises. Firms with foreign capital contribute relatively more than the overall factor productivity compared to local Chinese firms (Fan, 1999) since multinational firms invest in sectors with better productivity (Hanson, 2001).

While the theoretical literature reviewed earlier endorses FDI as a driver of structural transformation, the empirical literature does not present clear evidence of the FDI effects in CEMAC countries. Furthermore, what is less well understood is the precise channels through which FDI affects structural transformation in these countries.

3. Methodology

In this section, we will describe the statistical and econometric tools that will be used to analyse the impact of the FDI on structural transformation process in the CEMAC zone. We will start by describing the econometric model to be estimated. After, we will describe variables. The last subsection presents the statistical properties of our variables and the econometric procedure used to analyse our model.

3.1 *Specification of the econometrics model*

To measure the quality of exports and its variations over time and to determine whether it is crucial to the process of development, we focused on a key characteristic of a country's export package: sophistication. We used a measure of export sophistication created by Hausmann, Hwang and Rodrik (2007). Following these authors, the extension of this model permits us to add other indicators in the model, which act as control variables. The mathematical model for this study can be specified as follows:

$$STF_{it} = \alpha FDI_{it} + \beta X_{it} + \gamma V_{it} + \varepsilon_{it} \quad (1)$$

Where STF in equation (1) represents structural transformation in this model; we will explain the structural process by the FDI inflow and a set of explanatory variables (capture by the matrix X). The variables contained in the matrix X are our control variable given by the empirical literature about the determinants of structural transformation while V takes into account two interactive variables according to Zhang (2014) and Ouyang and Fu (2012). They are macroeconomic and institutional variables.

The study makes use of the pool mean group estimation approach. Following Pesaran et al. (1999) and Jouini (2015), the Pooled Mean Group (PMG) approach is used to estimate dynamic heterogeneous panels by considering long-run equilibrium relations, contrary to other techniques, such as the dynamic panel GMM method, that purge any potential long-run linkage among variables.

The PMG estimation approach allows identical long-run coefficients without assuming homogeneous short-run parameters. By doing so, the PMG estimation approach differs from techniques, such as the Mean Group (MG) developed by Pesaran and Smith (1995), that estimate a regression for each group and then calculate the mean coefficient (Evans, 1997; Lee et al., 1996).

The MG long-run estimators are consistent, but they are inefficient if coefficient homogeneity holds. Under these conditions, the PMG estimation approach is useful since it provides consistent and efficient long-run estimators when parameter homogeneity holds.

The PMG approach is preferable to the MG method since it provides estimates that are less sensitive to outlier estimates. We address endogeneity concerns by augmenting the PMG estimator with lags of regressors and dependent variables to minimize the resultant bias and ensure that the regression residuals are serially uncorrelated.

3.2 Choice and justification of the variables

The objective of our study is to analyse the impact of FDI on structural transformation process in the CEMAC. The empirical literature has identified many variables that can be used to capture structural transformation process: the Value added of the manufacturing sector as a part of the GDP (INDUS-VA) and the share of employment in this sector. For example, UNIDO (2013) and Echaudemaison (2003) have used the first indicator while Kaya (2010) and Kang & Lee (2011) have used the second indicator. Other authors like Girma et al., (2008); Zhang, (2015), Guy-Deby and Renard, (2015) and Ongo (2016) made use of both variables.

Notwithstanding, the use of these variables could also consider a more technological intensive export which implies greater development benefits to exporting countries (Lall et al., 2006; Jerreau and Poncet, 2012). As such, Export sophistication index will also be used as another proxy to capture structural transformation in this study.

What is worth noting is that, FDI can as well affect structural transformation through some interactive variables such as human capital (HUM_CAP), and domestic investment (GFCF_PRIV) according to Zhang (2014), Ougang and Fu, (2012).

What is worth noting is that Export sophistication on its part will be decomposed into two ways, namely medium- and high-tech manufactured exports per capita (MHTMXPC) and shares of medium- and high-tech manufactured exports in total manufactured exports (MHTMX/MX). When there are changes on export sophistication, it will lead to export upgrading or export sophistication dynamics.

In the same way, Export upgrading on its part will be decomposed into two ways, namely changes in medium- and high-tech manufactured exports per capita denoted as $\Delta(\text{MHTMXPC})$ and changes in the shares of medium- and high-tech manufactured exports in total manufactured exports denoted as $\Delta(\text{MHTMX/MX})$.

3.3 Results of unit root tests

To check the stationarity of our variables, we used the different first generation unit root tests on panel data available on the Eviews 13 software proposed by Im, Pesaran and Shin (1997) and Maddala and Wu (1999). These tests allow, under the alternative hypothesis, not only heterogeneity of the autoregressive root, but also heterogeneity as to the presence of the unit root in the panel. The first generation tests for Panel data are Levin and Lin (1992); Im, Pesaran and Shin (1997); G.S. Maddala and S. Wu (1999) and K. Hadri (2000).

This choice is justified by the fact that the countries of the CEMAC zone are not free from heterogeneity related to their different economic structures.

The results of stationarity tests reported on table 1 show that almost all the variables indicate the absence of a unit root at a form, with the exception of human capital (HUM_CAP), infrastructure (INFRAS) and gross domestic product per head (GDP_CAP) which are not stationary at form but stationary at first difference. In other words, the results of the tests performed on the first difference variables show that they are stationary. We therefore conclude for stationary tests that variables are stationary at a form². This allows us, therefore, to verify the long run relationship between these variables.

Table 1. : Results of the unit root tests

Variables	IPS at level	IPS at first difference	Conclusions
MHTMXPC	-1,68593 (0,0459)		I(0)
MHTMX/MX	-2,30778 (0,0105)		I(0)
FDI_GDP	-1.44420 (0.0743)		I(0)
GDP_CAP	3,90024 (1,0000)	5,01626 (0,0000)	I(1)
HUM_CAP	-0,49812 (0,3092)	-8,18217 (0,0009)	I(1)
GFCF_PRIV	-1.40273 (0.0803)		I(0)
INFRAS	2,19148 (0,9858)	-5,50588 (0,0000)	I(1)
TPOP	-6.97815 (0.0000)		I(0)
FDI*HUM_CAP	-1 ?56047 (0,0593)		I(0)
FDI*GFCF_PRIV	-1,40279 (0,0313)		I(0)

Source: Author computation using Eviews 13

4. Results and discussion

The estimation of our results will be done in two ways: on the one hand, we will estimate the model relating to the effect of foreign direct investment on structural transformation process in the CEMAC sub region. The results relating to the effect of FDI on export

² Stationarity signifies that the statistics properties of a process generating a time series do not change with time. It does not mean that the series does not change over time, just that the way it changes does not on itself change.

sophistication to capture structural transformation process are presented on the table 2. The results obtained when we use export upgrading³ in our analysis as another proxy to capture structural transformation in CEMAC are also presented in table 3.

Table 2: The effect of foreign direct investment on export sophistication

Dependent Variables	Independent variables: Exports sophistication			
	MHTMXPC		MHTMX/MX	
FDI_GDP	0,007 (1,6909)*	0,092 (6,9126)***	0,011 (2,9755)**	-0,284 (-3,9505)***
GDP_CAP	0,180 (7,6798)***	0,061 (2,162)***	0,011 (0,2137)***	0,136 (2,3530)*
HUM_CAP	0,001 (0,3972)	0,001 (1,9888)*	0,002 (2,2190)***	-0,003 (-2,2291)*
GFCF_PRIV	0,007 (4,2683)***	0,009 (5,9291)***	0,006 (1,7052)*	0,018 (4,6098)***
INFRAS	-0,087 (-4,2972)***	0,043 (2,6992)	-0,034 (-2,0197)*	-0,087 (-4,2972)*
TPOP	0,333 (19,9538)***	0,271 (21,8750)***	0,467 (10,9506)***	0,059 (1,2236)
FDI_HUM_CAP		0,003 (3,8044)***		0,007 (3,3551)**
FDI_GFCF		0,001 (0,9617)		0,004 (3,5757)***
No of observation	140	140	140	140

Source: Author computation using Eviews 13

Notes: MHTMXPC represents medium- and high-tech manufactured exports per capita; meanwhile MHTMX/MX represents shares of medium- and high-tech manufactured exports in total manufactured exports. Figures in brackets are t-statistics. The asterisks *, ** and ***, indicate significant levels at 10%, 5%, and 1%, respectively.

Foreign direct investment (FDI) is our variable of interest and seems to have a positive and a significant effect on exports sophistication (XS) and export upgrading (XU). The coefficient of FDI variables has a significant and a positive effect on almost every case of XS model in table 2 and so are the dynamics coefficients of the XU model in table 3. The results suggest that, XS and XU enhancement effect of FDI derives not only from the additional capital and access to new export market but as well as the technological and managerial know-how that the foreign firms bring in to the country. Our findings are in line with both theoretical and the empirical evidence in the literature. CEMAC's relatively high level of exports sophistication and rapid exports dynamics or upgrading indeed benefits largely from FDI (UNCTAD, 2002; Rodrik and Zhang, 2015). We can say that such

³ Exports upgrading (XU) is defined as increase in exports sophistication, that is a process by which countries move from exporting low-tech to high-tech product in the world market. Upgrading export is costly and risky and as such requires large investment in human capital and even physical capital

gains from FDI seem to depend largely on CEMAC's absorptive capacity in terms of human capital. Without this investment in human capital, CEMAC's relatively higher export sophistication would not be possible even with the amount of these FDI inflows (Scott, 2008; UNIDO, 2013).

Results from other independent variables are equally similar between the export sophistication and export upgrading models in almost all cases and to an extent consistent with theoretical predictions. The coefficients of the Log of Gross domestic product per capita (LN_GDP_CAP), physical capital (GFCF_PRIV), Human capital (HUM_CAP) and total population reveal the expected positive signs in all the cases. The significant negative coefficient of infrastructure (INFRAS) in some cases is justified by the low quality of infrastructures in some CEMAC sub region.

Some interesting comparisons can also be deduced from table 2 and 3 of our results. FDI seem to have much larger and significant effect on export sophistication and upgrading than domestic capital. Effects of domestic-human capita are insignificant in some cases if not all but its interaction with FDI (FDI*HUM_CAP; FDI*GFCF_PRIV; Δ FDI*HUM_CAP; Δ FDI*GFCF_PRIV) are positive and significant in most cases of export sophistication and upgrading models. This finding should not be confused with evidence from domestic and human capital but rather their effects would be limited without the FDI. In fact FDI served as a catalyst in CEMAC structural transformation process through export performance (Mühlen and Escobar, 2020).

On the bases of the robustness and endogeneity checks, some test and sensitivity analysis must be conducted. The sensitivity analysis is based on the use of the alternative measures of the dependent variables structural transformation process (export sophistication or export upgrading) and independent variables (FDI*HUM_CAP; FDI*GFCF_PRIV) are all reported in table 2 and 3. Beside, two indicators of exports sophistication have been employed in our regression analysis, namely medium- and high-tech manufactured exports per capita (MHTMXPC) and medium- and high-tech manufactured exports in total manufactured exports (MHTMX/MX). The reported results in table 2 and 3 are similar, and among them, none of the estimation results is significantly affected by these alternative measures of structural transformation process. This means the reported results seem not to depend on a specific measure used to quantify dependent and independent variables as seen on the table 3.

Table 3: The effect of foreign direct investment on export sophistication dynamics or upgrading

Dependent Variables	Independent variables: Exports upgrading			
	Δ MHTMXPC		Δ MHTMX/MX	
Δ FDI_GDP	0,008 (2,3019)**	0,140 (46,0653)***	0,007 (1,6909)*	0,092 (6,9126)***
Δ GDP_CAP_	0,230 (4,1280)***	0,137 (2,3530)*	0,329 (4,275)***	0,381 (5,269)***

Δ HUM_CAP	0,003 (0,4234)	0,008 (0,4132)*	0,001 (0,3972)	-0,001 (-1,9888)*
Δ GFCF_PRI	0,007 (3,0936)*	0,031 (54,1816)***	0,007 (4,2683)***	0,009 (5,9291)***
Δ INFRAS	-0,063 (-3,1177)*	-0,321 (70,1884)***	-0,087 (-4,2972)***	0,043 (2,6992)
Δ TPOP	0,349 (10,3638)***	-0,2740 (12,8001)***	0,333 (19,9538)***	0,271 (21,8750)***
Δ FDI_HUM_CAP		0,003 (48,9946)***		0,006 (12,15363)***
Δ FDI_GFCF		0,002 (40,8923)***		0,001 (0,9617)
No of observation	135	135	135	135

Source: Author computation using Eviews 13

Notes: Figures in brackets are t-statistics. The asterisks *, ** and ***, indicate significant levels at 10%, 5%, and 1%, respectively.

5. Conclusion Recommendations and Suggestions for further research

5.1 Conclusions

From the findings of the study base on the objectives, structural transformation is paramount, but it is still difficult to achieve in developing countries especially the CEMAC sub regions due to low domestic resources, a lack of technology and managerial expertise, and a low development of the industrial sector to lead it. FDI is a critical factor in structural transformation; yet, study on this issue has been limited, particularly in CEMAC countries. Thus, this study examined the effect of FDI on structural transformation in 6 CEMAC countries from Cameroon, Chad, the Central African Republic, Equatorial Guinea, Gabon, and the Republic of Congo (where oil is the big story), selected based on data accessible from 1985 to 2018. According to the analysis, structural transformation has been less successful in Africa in general and CEMAC countries in particular. The results of the pooled mean group estimation technic suggest that FDI inflows promote structural transformation when export sophistication is use as a proxy. Besides, different control variables, such as Gross domestic product per capita (GDP_CAP), physical capital (GFCF_PRIV), Human capital (HUM_CAP) and total population, play significant roles in facilitating structural transition in CEMAC countries.

5.2 Recommendations

On the basis of the conclusions which have been drawn from the findings, Policy makers in CEMAC countries should encourage policies that facilitate labor mobility to potentially increase the effects of FDI on structural transformation. Manufacturing-export motivated FDI, in particular, should be encouraged in policy by introducing specific incentives such as tax and tariff exemptions, land and infrastructure provision, and less bureaucracy for them. Improving host countries' absorptive ability by, for example, enabling domestic enterprises to acquire technology from foreign firms by giving financial access and

training opportunities, and improving human capital accumulation, supporting technical and vocational education. Moreover, as population pressure causes agricultural landholdings per capita to decrease over time, governments in these countries should encourage farmers to consolidate their land by providing various incentives, such as allowing the commercial sale of land, in order to achieve agricultural-sector transformation, which is a necessary condition for structural transformation (Glitsch et al., 2020).

5.3 Suggestions for further research

In order to increase the generalizability of the findings, it is recommended that further investigations of the effects of foreign direct investment (FDI) on structural transformation in CEMAC give due consideration to the following criteria;

- Sectoral Analysis: Conduct a detailed examination of the sectors within the CEMAC countries that attract FDI. Investigate how FDI inflows contribute to structural changes within these sectors, such as manufacturing, services, natural resources extraction, and agriculture. Analyze the extent to which FDI influences the transformation of these sectors, including technological advancements, productivity improvements, and value addition is very important.
- Value Chain Analysis: Explore the integration of CEMAC economies into global value chains (GVCs) through FDI. Investigate how FDI affects different stages of the value chain, including upstream activities like raw material extraction and downstream activities such as marketing and distribution. Assess the impact of FDI on upgrading within the value chain, as well as the implications for local firms' participation and competitiveness.

6. References

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Appendix

Table 4: Variables description and data sources

Variable	Signs	Description	Data sources
Foreign direct investment	FDI_GDP	Foreign direct investment As a percentage of GDP	World Development Indicators
Exports sophistication	Indus_XS	Medium and high-tech Industry (including construction) (% manufacturing value added)	World Development Indicators
Gross domestic product per capita	GDP_CAP	Gross Domestic product per capita (constant 2010 US\$)/GDP (constant 2010 US\$)	World Development Indicators
HUM_CAP	HUM_CAP	School enrollment, secondary (gross), gender parity index (GPI)	World Development Indicators
GFCF_PRIV	GFCF_PRIV	Gross fixed capital formation, private sector (% of GDP)	World Development Indicators
Infrastructure	INFRAS	Number of telephone lines (per 100 person)	World Development Indicators
Total population	TPOP	Size of the economy/market, are reported in millions of inhabitants.	World Development Indicators

Source: Author