Morocco's Participation in Global Value Chains and the impact on Economic Growth, Application of the Autoregressive Lag Model (ARDL)

Farah Benomar*, Hicham EL Bouanani and Abdelaaziz Ezziani

LMAEG, Hassan II University of Casablanca, Casablanca, Morocco.

Abstract: One of the trends observed in recent decades is the rise of global value chains (CVCs). Integration into a GVC means that a country becomes part of an international production network in which intermediate goods are sourced from different locations and assembled in a third country (BENOMAR, El Bouanani , & Ezziani, L'intégration du Maroc et l'Afrique du Sud dans les Chaines de valeur mondiale: Cas du secteur automobile, 2022). GVCs offer developing countries the opportunity to participate in the global economy (Baldwin, 2011), and are an important driver of economic growth (OCDE, 2014). To examine whether participation in GVCs has beneficial macroeconomic effects and could represent a development strategy for Morocco, we will test econometrically the relationship between GVC participation and economic growth. For this purpose, we will exploit data from the World Bank, OECD, the period from 1991 to 2021 and, through the autoregressive lag model (ARDL), we will analyze the results obtained.

Keyword: Global Value Chains, Growth, Morocco, ARDL.

1. INTRODUCTION

The ability of countries to prosper depends on their participation in the global economy, which largely depends on their role in global value chains (GVCs) (Gereffi, 2015).

As GVCs are characterized by specialization in particular tasks in the production chain, developing countries have the opportunity to participate in the global economy without having to develop a complete value chain (Baldwin, 2011) , so a country can only add a part of the value of the exported goods. It is often said that half of world trade takes place within GVCs (World Bank, 2020).

Emerging economies play an important role in GVCs. (Gereffi, 2015). They can participate either upstream or downstream. Upstream participation measures the foreign value-added content of exports. The exporting country plays the role of a buyer of inputs. On the other hand, downstream participation represents the role of the seller and measures the domestic value-added content contained in third-party exports.

Morocco has succeeded in improving its positioning in GVCs in a few years, showing a much more competitive level of participation in GVCs than many African countries (World Bank, 2020).

The relationship between participation in global value chains and economic growth is the subject of several publications that claim that participation in GVCs is considered an important driver of economic growth (OCDE, 2014), Thus, decision-makers from institutions and countries have placed it at the heart of their programs and emphasized its importance for economic development. (Nadeem, Jun, Niazi, Tian, & Subhan, 2021).

In order to examine whether participation in GVCs has beneficial macroeconomic effects for Morocco and could therefore represent a development strategy, this study aims to answer the following research question: What is the impact of Morocco's participation in GVCs on economic growth?

This study is organized as follows: we will first review the literature on the concept of GVCs and their measurement indicators, then examine previous literature on the impact of GVCs on economic growth, then present the data, variables, and methodology used to examine this relationship. Then we will present the results, conclusions, and policy recommendations.

2. LITERATURE REVIEW:

2.1. Definition of Global Value Chains

The economic growth observed in recent years has highlighted the importance of the participation of developing countries in GVCs (BENOMAR, EL Bouanani, & Ezziani, La participation aux Chaines de valeur mondiale et la mise à niveau économique: Revue de litterature et élaboration de modèle conceptuel, 2023). The economic literature presents various definitions of Global Value Chains. A group of international organizations adopt the following definition: "A value chain represents all the activities that companies undertake to bring a product or service from conception to final use by the end consumer. At each stage of the chain, value is added in one form or another. As a result of offshoring and increasing interconnectivity, the activities that make up the value chains of many products and services are increasingly

*Address correspondence to this author at the LMAEG, Hassan II University of Casablanca, Casablanca, Morocco; Tel: +212662842937;
E-mail: benomar.farah-etu@etu.univh2c.ma

fragmented across the globe and between companies. Various tasks throughout the production chain can be performed in remote locations, depending on the respective comparative advantages of different countries. The interconnected production process that goods and services go through from conception and design to manufacturing, marketing, and sales is often referred to as a global value chain or international production network (Gereffi & Fernandez-Stark, Global Value Chain Analysis: A Primer, 2011)»

2.2. Measurement of participation in GVCs

Integration into a global value chain means that a country becomes a stakeholder in an international production network in which intermediate goods are sourced from different locations and assembled in a third country (BENOMAR, El Bouanani , & Ezziani, L'intégration du Maroc et l'Afrique du Sud dans les Chaines de valeur mondiale: Cas du secteur automobile, 2022)

Since the seminal article by (Hummels, Ishii, & Yi, 2001), participation in GVCs has generally been defined and measured in terms of vertical specialization. According to this definition, the production of a good in a GVC must take place in different stages of production, in which at least two countries are involved, crossing at least two borders. A distinction is made between upstream and downstream participation. Upstream participation measures the foreign value-added content of exports. Here, the exporting country plays the role of a buyer of inputs. For example, upstream participation is very high if a country functions as an assembly platform where imported components are only assembled for export. On the other hand, downstream participation represents the role of the seller. The national value-added contained in third-country exports is measured here. These two values taken together as a percentage of exports express the rate of participation in GVCs. Based on this definition, it is often said that half of global trade occurs within GVCs (World Bank, 2020).

(Carballa Smichowski, Durand, & Knauss, 2020) present another measurement method and consider participation in GVCs as the sum of the share of non-primary products of domestic value-added in exports plus intermediate imports, both together as a share of GDP. This method is characterized by three features, firstly, it excludes primary products. Secondly, imports of finished goods for domestic use are also excluded. Thirdly, the denominator is GDP and not gross exports.

in our study, we will use the method of Hummel et al (2001)

2.3. Empirical Literature on the Relationship between Participation in Global Value Chains and Economic Growth

In this section, we examine previous studies on the impact of GVCs on economic growth.

Research on GVCs offers an important and powerful lens for analyzing economic growth, particularly for development policies. To move towards sustainable development, integration into a global value chain (GVC) is often the first step. Therefore, integration into global value chains is not a quick fix for achieving economic development (OCDE, 2014). A study by the(Forum, 2013) revealed that GDP could increase by 4.7% and exports by 14.5% if every country improved its border administration as well as its transportation and communication infrastructure.

Most publications argue that increased participation in global value chains contributes to economic growth. Indeed, global value chains (GVCs) provide developing countries with opportunities to participate in the global economy without needing to develop an entire value chain (Baldwin, 2011). Such participation does not automatically generate development. However, participation in GVCs affects economic growth mainly through specialization gains, as well as through the effects of terms of trade, knowledge transfer or spillovers, structural change in economies, modernization, and governance within GVCs. (Piermartini & Rubínová, 2014), also demonstrate that global value chains facilitate knowledge transfer more than do exchanges of final goods. In fact, GVCs are characterized by the international circulation of economic factors, such as know-how (technology), investment, and human capital, which affect the economies involved (Taglioni & Winkler, 2016). Developing countries can rely on this foreign knowledge (technologies) from GVCs to promote innovation (De Marchi, Giuliani, & Rabellotti, 2018) and catch up through learning-by-doing or learning-by-using (Lee, Kim, Park, & Sanidas, 2013).

Some articles use case examples to highlight the contribution of GVCs to economic growth, such as the cases of Central America, East Africa, Mexico, and Brazil (Gereffi, 2015) and Turkey (Tokatli, 2007), Other articles have used simple linear correlation with figures (Taglioni & Winkler, 2016) (UNCTAD, 2013) (WTO, 2019); while others have provided empirical evidence at the industry level (Kummritz, 2016) (Kummritz, Taglioni, & E. Winkler, Economic Upgrading Through Global Value Chain Participation: Which Policies Increase the Value Added Gains?, 2017).

In contrast to analyzing the impact of GVCs on economic growth, some researchers question what motivates participation in GVCs and study the economic effects of participating in global value chains through empirical analysis. For example, (Kowalski, Gonzalez, Ragoussis, & Ugarte, 2015) study the economic performance of GVCs at the industry level, while (Taguchi, 2014) studies the economic effect of participating in global value chains by examining value-added trade models, focusing on developing countries in Asia. It highlights that the path of GVC participation development has followed a "smile curve," with economic growth..

A number of studies attempt to quantify the effects of participating in GVCs on economic growth. (Kummritz, Taglioni, & E. Winkler, Economic Upgrading Through Global Value Chain Participation: Which Policies Increase the Value Added Gains?, 2017) found that integration into GVCs generally increases the value added of an industry, particularly when participating in upstream stages.

In a systematic quantitative analysis for a panel of 63 advanced and emerging economies, (Mao, 2021) found that to promote economic growth, emerging economies should increase their domestic value added (DVA) and reduce their foreign value added (FVA).

Recently, and contrary to the vision of positive linear effects drawn from the use of case studies, some studies have examined the relationship between economic growth and participation in global value chains (GVCs) and have shown that the U-shaped non-linear model of GVCs may be more effective than the simple linear model of GVCs in terms of economic growth in high and middle-income economies. (Fagerberg, Lundvall, & Srholec, 2018) have shown that the relationship between global value chains and economic growth is not always linear and positive, that countries that increase their participation in GVCs do not experience faster growth than others, meaning that participation in global value chains has little effect on economic growth. (Lee, Szapiro , & Mao , From Global Value Chains (GVC) to Innovation Systems for Local Value Chains and Knowledge Creation, 2018) have shown that at the initial stage of the growth of a developing country, increased participation in global value chains (GVCs) is necessary to acquire foreign production knowledge and skills. The authors showed that less foreign value added (more domestic value added) would improve economic growth in the intermediate phase, and more foreign value added (less domestic value added) would contribute to GDP per capita in the next phase. They also showed that in the initial phase, GDP per capita of advanced economies increases with the rise of foreign value added, while GDP per capita of emerging economies decreases with the rise of foreign value added. Later, GDP per capita of emerging countries increases while their foreign value added has decreased..

2.4. Research Hypotheses

Based on this theoretical overview, we will attempt to empirically test the following hypotheses:

H1: Participation in GVC can have a positive impact on economic growth.

H 1-1: Upstream participation in GVC can have a positive impact on economic growth

H 1-2: Downstream participation in CVMs can have a positive impact on economic growth.

3. METHOD AND DATA

3.1. Econometric Estimation

The different stages of modeling are presented as follows::

3.2. Study of Stationarity

The study of data stationarity is a crucial step in econometric modeling. Stationarity means that the statistical properties of the data do not change over time, i.e., the mean, variance, and covariance are not time-dependent. In order to verify the stationarity of the data, we will first use the correlogram and then adopt the standard approach of a time series. The two most commonly used stationarity tests are the Augmented Dickey-Fuller (ADF) test (1981), which is a unit root test that tests the null hypothesis that a time series has a unit root, meaning it is not stationary. The second test is the Kwiatkowski-Phillips-Schmidt-Shin (KPSS) test (1988), which is a trend-stationarity test that tests the null hypothesis that a time series is stationary by removing a deterministic trend

3.3. Model Estimation

The ARDL (AutoRegressive Distributed Lag) model is an econometric model developed by Pesaran et al. (2001), it allows the analysis of short and long term relationships between variables. It is used to model causal relationships between a dependent variable and several explanatory variables.

The ARDL model does not impose stationarity of the variables in the same level, unless:

- All variables are stationary at Level I(0)
- All variables are stationary at first difference I(1) ;
- Some variables are stationary at Level I(0), and others at first difference I(1).

Note that the ARDL model is not applicable for second difference I(2) stationarity (Pesaran, Shin, & Smith, 2001) . The econometric equation of the ARDL model is written as follows/

$$Yt = \alpha + \beta 1Yt-1 + \beta 2Yt-2 + ... + \beta pYt-p + \delta 1Xt-1 + \delta 2Xt-2 + ... + \delta pXt-p + \gamma 1Zt-1 + \gamma 2Zt-2 + ... + \gamma pZt-p + \varepsilon t$$

With:

- **Yt** is the dependent variable at time t
- **α** is the constant.
- **β1, β2, ..., βp** are the regression coefficients for the lags of the dependent variable.
- **Yt-1, Yt-2, ..., Yt-p** are the lagged values of the dependent variable
- **δ1, δ2, ..., δp** are the regression coefficients for the lags of the explanatory variable XXt-1,
- **Xt-2, ..., Xt-p** are the lagged values of the explanatory variable X
- **γ1, γ2, ..., γp** are the regression coefficients for the lags of the explanatory variable Z
- **Zt-1, Zt-2, ..., Zt-p** are the lagged values of the explanatory variable Z
- **εt** is the error term.

3.4. Cointegration Test

Cointegration between series implies the existence of one or more long-term equilibrium relationships between them.

When we have several integrated variables of different orders (I(0), I(1)), we can use the cointegration test of Pesaran et al. (2001) called "bounds test to cointegration", originally developed by Pesaran and Shin (1999) in order to verify the existence of one or more long term relationships between the variables in an ARDL model.

- If the Fisher value is greater than the upper bound, there is a cointegration between the variables.
- If the Fisher value is lower than the lower bound, there is no cointegration between the variables.
- If the Fisher value is between the two bounds, we cannot conclude.

3.5. Stability of the Model

To test the stability of the model, we will use the CUSUM (cumulative sum) test for the residuals, in order to test if they are well centered around zero and do not show any particular trend.

3.6. Model Validity

The statistical validation phase of the model consists in testing the Normality of the errors using the Jarque-Bera test, the Heteroscedasticity test using the Breusch-Pagan-Godfrey test and the Autocorrelation of the errors using the Breusch-Godfrey test.

Estimation of the short and long term relationship ARDL

Data

The objective of this study is to analyze the relationship between GVC participation (upstream and downstream) and economic growth. The data used are annual time series covering the period 1991 -2021. This means that our sample consists of 31 observations.

The data come from the World Bank database and the OECD's TIVA 2021 edition database

3.6. Variable Selection and Data Presentation

In this study, five variables will be used: economic growth represents the variable to be explained. Upstream participation and downstream participation represent the explanatory variables and Foreign Direct Investment as a control variable.

The following table presents the variables of our study, the measurement indicator, and the source of each variable.

Table 2. Presentation of Model Variable.

Variable	Indicator	Data source	Period
Economic growth	GDP/capita	World Bank database	1991-2021
Upstream Participation	Foreign Value Added/Gross Export	Value Added Trade Database (TiVA)	1991-2021
Downstream Participation	Indirect Local Value Added/Gross Export	Value Added Trade Database (TiVA)	1991-2021
Foreign Direct Investment (FDI)	Foreign direct investment, net inflows (% of GDP)	World Bank database	1991-2021

Source: Authors.

4. RESULTS

Before proceeding with any form of analysis, we transformed these variables into logarithmic form.

4.1. Descriptive Study

This step serves to describe and analyze the data through the calculation of position, dispersion and normality indicators. The following table shows these calculations using Eviews 12:

This descriptive study informs us that, except for FDI, the mean and the median of the variables are almost identical, which indicates that the variables follow a normal distribution. This is confirmed by the Jarque-Bera probabilities which are greater than 5% except for FDI.

The skewness coefficient "Skewnes" informs us of the presence of skewness towards the left for all the variables because the coef >0.

The Kurtosis coefficient indicates that the distribution of FDI is sharp because this coefficient is greater than 3), but the other variables are flatter than the normal distribution

4.2. Graphical Study

The graphical visualization of the variables used allows us to observe their variations throughout the period from 1991 to 2021.

After an initial visualization of the series graphs, it appears that the first three variables are not stationary at the level, while the evolution of the FDI suggests that it is stationary at the level.

4.3. Stationarity Tests

To verify and determine the degree of integration of each variable, we will perform the stationarity test using the Augmented Dickey-Fuller (ADF) test and the Phillips-Perron (PP) test.

Table 1. Descriptive study of the model variables.

	GDP CAPITA	DOWNSTREAM PARTICIPATION	UPSTREAM PARTICIPATION	FDI
Mean	3.334265	0.220445	0.293114	2.232583
Median	3.326143	0.215850	0.278264	1.986389
Maximum	3.525774	0.285704	0.456548	7.158102
Minimum	3.163151	0.174379	0.189558	0.738436
Std. Dev.	0.123835	0.027978	0.080992	1.318219
Skewness	0.225847	0.476599	0.449599	1.760060
Kurtosis	1.633899	2.698014	1.995512	7.336933
Jarque-Bera	2.674084	1.291387	2.347672	40.30029
Probability	0.262621	0.524299	0.309179	0.000000
Sum	103.3622	6.833804	9.086519	69.21006
Sum Sq. Dev.	0.460051	0.023484	0.196793	52.13102
Observations	31	31	31	31

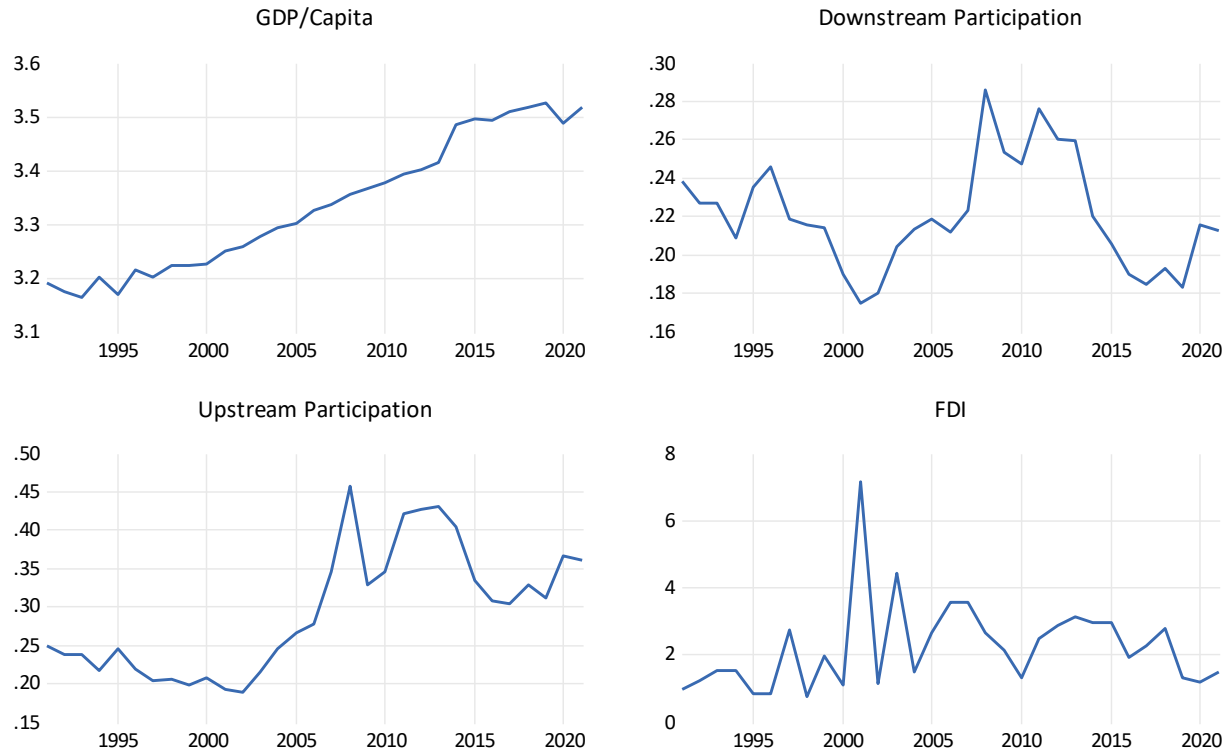

Fig. (1). Graphical representation of the variables in the model.

Table 3. Augmented-Dickey Fuller et Phillips-Perron Tests.

Test	Dickey Fuller Augmented					Philips Perron				
Variable	Level		1st Difference		Ordre d'integration	Level		1st Difference		Ordre d'integration
	Statistic	P-Value	Statistic	P-Value		Statistic	P-Value	Statistic	P-Value	
GDP/Capita	-3,4851	0,0593	-7,7714	0	I(1)	-3,48515	0,0593	-7,7144	0	I(1)
Downstream Participation	-0,4779	0,5001	-5,8022	0	I(1)	-0,4769	0,5006	-5,8328	0	I(1)
Upstream Participation	0,1072	0,7092	-5,6608	0	I(1)	0,1391	0,719	-5,6608	0	I(1)
FDI	-5,9201	0	***	***	I(0)	-5,9181	0	***	***	I(0)

The Augmented Dickey Fuller and Phillips-Perron tests show that the variables GDP per capita, upstream participation, and downstream participation are stationary in first difference, indicating that they are integrated of order 1, while FDI are stationary at level, indicating that they are integrated of order 0. The decision made for the most appropriate model is the Autoregressive Distributed Lag (ARDL) model.

5. ESTIMATION OF ARDL MODEL

5.1. Optimal ARDL model and estimation of the chosen model

To choose the optimal ARDL model, the one that yields statistically significant results with the fewest parameters, we will use the Akaike Information Criterion (AIC).

According to the AIC criterion, the ARDL model (2, 0, 3, 3) is the most optimal among the 19 others, because it gives the smallest value of the AIC. It is the model that yields statistically significant results, and its coefficients are estimated by the Fig. (**3**).

5.2. Hypothesis Testing for the Validity of the ARDL Model (2, 0, 3, 3).

The validity of our model requires confirmation through a set of hypotheses, and we perform the following robustness tests: Normality test of errors, Heteroscedasticity test, Autocorrelation test of errors, White Noise test of residuals, and Model stability test.

In the table below, the probability of the statistic for the 3 tests is greater than 5%. This means that the H0 hypothesis is accepted in all these tests. Therefore, the errors are not correlated, are homoscedastic, and their distribution follows a normal distribution.

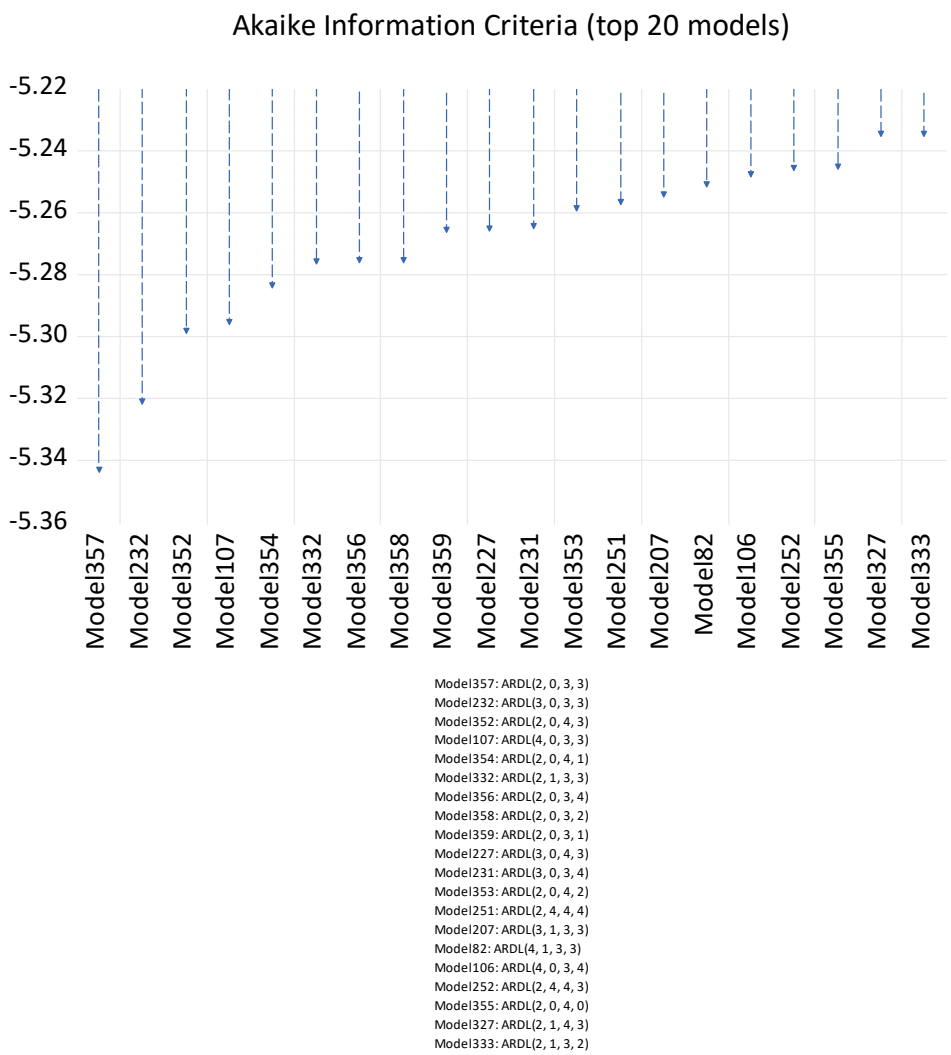

Fig. (2). Optimal ARDL Model.

Variable	Coefficient	Std. Error	t-Statistic	Prob.*
GDP CAPITA(-1)	0.194862	0.156269	1.246959	0.2304
GDP CAPITA(-2)	0.543646	0.154723	3.513666	0.0029
DOWNSTREAM PARTICIPATION	-0.562136	0.314158	-1.789340	0.0925
UPSTREAM PARTICIPATION	0.126413	0.143931	0.878287	0.3928
UPSTREAM PARTICIPATION(-1)	0.209874	0.086997	2.412421	0.0282
UPSTREAM PARTICIPATION(-2)	-0.069012	0.089759	-0.768857	0.4532
UPSTREAM PARTICIPATION(-3)	0.165020	0.071831	2.297356	0.0354
FDI	0.002262	0.002954	0.765641	0.4550
FDI(-1)	0.002778	0.002799	0.992406	0.3358
FDI(-2)	0.003966	0.002459	1.612683	0.1264
FDI(-3)	0.003755	0.002409	1.559110	0.1385
C	0.858345	0.306784	2.797880	0.0129

R-squared	0.991726	Mean dependent var	3.351289
Adjusted R-squared	0.986038	S.D. dependent var	0.117983
S.E. of regression	0.013941	Akaike info criterion	-5.410468
Sum squared resid	0.003110	Schwarz criterion	-4.839523
Log likelihood	87.74655	Hannan-Quinn criter.	-5.235924
F-statistic	174.3522	Durbin-Watson stat	2.115807
Prob(F-statistic)	0.000000		

*Note: p-values and any subsequent tests do not account for model selection.

Fig. (2). Estimation results of the coefficients.

Table 4. Hypothesis testing for the ARDL model (2, 0, 3, 3).

ARDL Model: (2, 0, 3, 3)			
Hypothesis to be tested (H0)	Test applied	Test statistic	P-value
There is normality of errors.	Jarque-Bera	1.101578	0.5764
No autocorrelation of errors	LM test	2.118157	0.1572
There is homoscedasticity of errors	Breusch-Pagan-Godfrey	0.747780	0.6826

❖ Short-term relationship

ECM Regression
Case 2: Restricted Constant and No Trend

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(GDP_CAPITA(-1))	-0.543646	0.121070	-4.490333	0.0004
D(UPSTREAM_PART...	0.126413	0.060129	2.102382	0.0517
D(UPSTREAM_PART...	-0.096008	0.060565	-1.585214	0.1325
D(UPSTREAM_PART...	-0.165020	0.060017	-2.749561	0.0142
D(FDI)	0.002262	0.001742	1.297955	0.2127
D(FDI(-1))	-0.007722	0.002546	-3.032832	0.0079
D(FDI(-2))	-0.003755	0.001827	-2.055908	0.0565
CointEq(-1)*	-0.261493	0.030848	-8.476819	0.0000

Fig. (3). White noise test of the residuals.

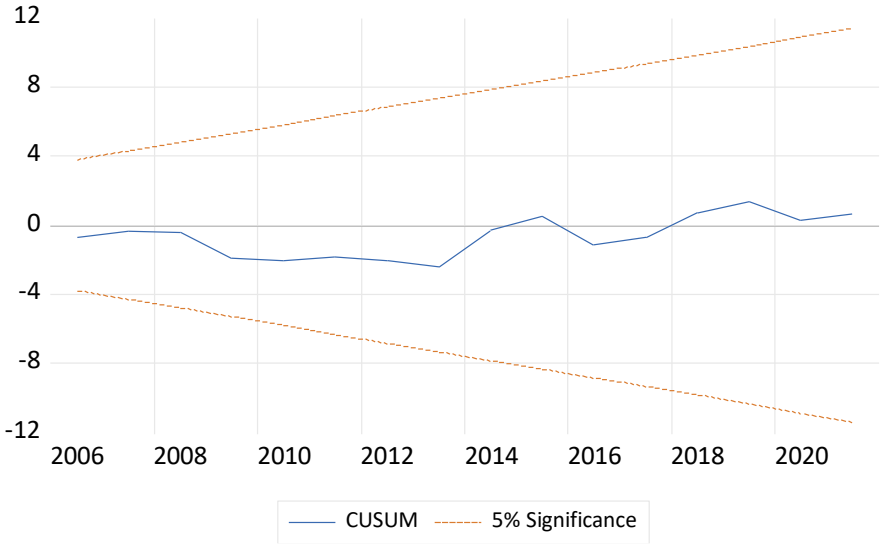

Fig. (4). Stability test of the ARDL (2, 0, 3, 3) model.

The objective of this white noise test is to verify that the residuals, between the observed values and the values estimated by the model, behave like white noise.

From the Fig. (**4**), we can easily see that, regardless of the lag k, the probability of the test is always greater than 0.05, and all the terms of the correlogram are confined within two corridors (the first corridor is associated with autocorrelation and the other with partial autocorrelation). In this case, the order of the autocorrelation is determined by the number of terms that fall outside the corridor. Here, we notice that none of the terms in the correlogram fall outside the dashed band, which indicates that the residuals of the estimated model are white noise.

Based on the results of the CUSUM test, we can say that the estimated model is stable (since the curve does not fall outside the dashed corridor). Therefore, the coefficients are stable over time.

In summary, the results of the different diagnostic tests have led to the validation of our ARDL (2, 0, 3, 3) model from a statistical perspective.

Table 5. Bounds Test Statistic.

❖ Long-term relationship

Levels Equation
Case 2: Restricted Constant and No Trend

Variable	Coefficient	Std. Error	t-Statistic	Prob.
DOWNSTREAM PAR...	-2.149720	0.659806	-3.258107	0.0049
UPSTREAM PARTICI...	1.653185	0.171021	9.666536	0.0000
FDI	0.048801	0.027259	1.790296	0.0923
C	3.282483	0.152531	21.52011	0.0000

EC = GDP CAPITA - (-2.1497*DOWNSTREAM PARTICIPATION + 1.6532*UPSTREAM PARTICIPATION + 0.0488*FDI + 3.2825)

5.3. Cointegration Test using Pesaran's (2001) Bound Test

The results of the bounds cointegration test confirm the existence of a cointegration relationship between the dependent variable, per capita GDP (economic growth), and the explanatory variables: downstream participation and upstream participation. This is because the value of the F-statistic = 11.49703 is greater than the upper bound for different levels of significance (1%, 5%, and 10%). Thus, we reject the null hypothesis of no long-term relationship and conclude that there is a long-term relationship between the different variables.

5.4. Short-term Dynamics and Estimation of Long-term Coefficients

The tests applied to the model denote a long-term relationship (co-integration) guaranteeing an error correction mechanism. Therefore, the error correction term, represented here by CointEq(-1), is statistically significant and negative with an associated coefficient estimate of (-0.261493), which shows the presence of a co-integration relationship between the variables and implies that approximately 26% of the disequilibrium movements are corrected within one period.

The long-term elasticities of economic growth with respect to the different variables studied are statistically significant at 5% for downstream participation, 1% for upstream participation, and 10% for FDI. These results show that there is a negative relationship between downstream participation and economic growth, a positive relationship between upstream participation and economic growth, and FDI and economic growth. The elasticities are -2.14, 1.65, and 0.04. Indeed, a 1% increase in downstream participation leads to a 2.14% decrease in GDP per capita. An increase of 1% in upstream participation and FDI results in an increase of 1.65% and 0.04% in GDP per capita.

Morocco's upstream participation in value chains positively impacts economic growth as it allows the country to access raw materials, technologies, and skills that it does not possess, which can stimulate economic growth by creating employment opportunities and increasing production. Moreover, upstream participation can also help companies access foreign markets by providing high-quality products at competitive prices.

However, it should be noted that participation in value chains can also have negative effects for Morocco, as downstream participation can lead to:

- Increased competition, which can affect local businesses and workers.
- Dependency on large foreign companies, which can make the country vulnerable to external economic fluctuations such as changes in trade policies, variations in raw material prices, and limit the capacity to develop more advanced local industries.
- Integration at the level of low-value-added activities (assembly and mounting, production of simple components).

CONCLUSION

This article aims to test the relationship between Morocco's participation in value chains and economic growth for the period 1991-2021. We utilized the World Bank database and the Trade in Value Added (TIVA) database.

The estimation of our ARDL model demonstrated the existence of a long-term cointegrating relationship between Morocco's participation in Global value chains and its economic growth, and that downstream participation has a negative and significant impact on economic growth, while upstream participation has a significant positive impact on economic growth.

Regarding the robustness of the model, all assumptions were accepted, namely that the model follows a normal distribution (Jarque-Bera), is homoscedastic (Breusch-Pagan-Godfrey), and has no autocorrelation (Breusch-Godfrey). Therefore, the results confirmed the existence of an asymmetric relationship

Morocco's participation in the global production process is often considered the first step on the road to development. In this regard, the main objective of this study is to recommend the development of an upmarket strategy in GVCs in order to position themselves at the level of more value-added activi-

ties, to raise awareness of the importance of a new production model based on export sophistication, and to strengthen local capacities through training and skills development.

Our work will serve as a foundation for researchers involved in economic topics, notably economic growth and global value chains, and can also be used as a research lead for other developing countries. Finally, our work will provide policy makers with access to evidence that can promote economic growth in the country.

REFERENCES

Lee, K., Kim, B.-Y., Park, Y.-Y., & Sanidas, E. (2013). Big businesses and economic growth: Identifying a binding constraint for growth with country panel analysis. *Journal of Comparative Economics, 41*(2), 561-582.

Baldwin, R. (2011, December). *Trade and Industrialisation after Globalisation's 2nd Unbundling: How Building and Joining a Supply Chain Are Different and Why It Matters*. National Bureau of economic research.

BENOMAR, F., El Bouanani , H., & Ezziani, A. (2022, Mai 28). L'intégration du Maroc et l'Afrique du Sud dans les Chaines de valeur mondiale: Cas du secteur automobile. *Revue Internationale du Chercheur, 3*(2), 434-457.

BENOMAR, F., EL Bouanani, H., & Ezziani, A. (2023, Mars). La participation aux Chaines de valeur mondiale et la mise à niveau économique : Revue de litterature et élaboration de modèle conceptuel. *Revue Française d'Economie et de Gestion, 4*(3), 126-153.

Carballa Smichowski, B., Durand, C., & Knauss, S. (2020). Participation in global value chains and varieties of development patterns. *Cambridge Journal of Economics, 45*(2), 271-294.

De Marchi, V., Giuliani, E., & Rabellotti, R. (2018). Do Global Value Chains Offer Developing Countries Learning and Innovation Opportunities? *The European Journal of Development Research, 30*, 389-407.

Fagerberg, J., Lundvall, B.-Å., & Srholec, M. (2018, june 15). Global Value Chains, National Innovation Systems and Economic Development. *The European Journal of Development Research*, 533-556.

Forum, w. E. (2013). *Enabling Trade valuing growth opportunities.* Geneva, Switzerland: world Economic Forum.

Gereffi, G. (2015). *Global value chains, development and emerging economies.* United Nations University – Maastricht Economic and Social Research Institute on Innovation and Technology (MERIT). Netherlands: Maastricht.

Gereffi, G., & Fernandez-Stark, K. (2011). *Global Value Chain Analysis: A Primer.* Center on Globalization, Governance & Competitiveness (CGGC). Durham: Duke University.

Hummels, D., Ishii, J., & Yi, K.-M. (2001). The nature and growth of vertical specialization in world trade. *Journal of International Economics, 54*(1), 75-96.

Kowalski, P., Gonzalez, J., Ragoussis, A., & Ugarte, C. (2015). *Participation of Developing Countries in Global Value Chains: Implications for Trade and Trade-Related Policies.* Paris: OECD Publishing.

Kummritz, V. (2016). *Do Global Value Chains Cause Industrial Development?* Geneva: Graduate Institute of International and Development Studies.

Kummritz, V., Taglioni, D., & E. Winkler, D. (2017). *Economic Upgrading Through Global Value Chain Participation: Which Policies Increase the Value Added Gains?* Washington DC: World Bank.

Lee, K., Szapiro , M., & Mao , Z. (2018, October 14). From Global Value Chains (GVC) to Innovation Systems for Local Value Chains and Knowledge Creation. *The European Journal of Development Research*, 424-441.

Mao, Z. (2021, January). Global Value Chains (GVCs) and Economic Growth: A Nonlinear Analysis. *Singapore Economic Review*.

Nadeem, ,. M., Jun, Y., Niazi, M., Tian, Y., & Subhan, S. (2021). Paths of economic development: a global evidence for the mediating role of institutions for participation in global value chains. *Economic Research-Ekonomska Istraživanja, 34*(1), 687-708.

OCDE. (2014). *Economies interconnectées; Comment tirer parti des chaines de valeur mondiales.*

Pesaran, M., Shin, Y., & Smith, R. (2001). Bounds testing approaches to the analysis of level relationships. *Journal of Applied Econometrics, 16*(3), 289-326.

Piermartini, R., & Rubínová, S. (2014). *Knowledge spillovers through international supply chains.* Knowledge spillovers through international supply chains. Geneva: World Trade Organization.

Taglioni, D., & Winkler, D. (2016). *Making Global Value Chains Work for Development.* Washington D.C: World Bank Publications.

Taguchi, H. (2014). Dynamic Impacts of Global Value Chains Participation on Asian Developing Economies. *Foreign Trade Review, 49*(4), 313-326.

Tokatli, N. (2007). Networks, firms and upgrading within the blue-jeans industry: Evidence from Turkey. *Global Networks*, 51-68.

UNCTAD. (2013). *World Investment Report, Global Value Chains: Investment and Trade for Development.* United Nations, New York, NY & Geneva.

World Bank. (2020). *Trading for Development in the Age of Global Value Chains in perspective*. Report.

WTO. (2019). *Global Value Chain Development Report 2019.* Geneva: World Trade Organization.

Received: Oct 05, 2023 Revised: Oct 08, 2023 Accepted: Oct 12, 2023