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Trade liberalization and poverty reduction in the WAEMU area

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Abstract: The objective of this paper is to examine the impact of trade openness on poverty based on data from a panel of eight countries of the West African Economic and Monetary Union between 1993 and 2021. The adopted methodological approachis mainly based on the analysis of panel data. Our results indicate that trade openness contributes significantly to poverty reduction. However, it is important to note that the growth channel, often discussed in the theoretical literature, remains insignificant in the relationship between trade openness and poverty. This finding is partly explained by the fact that the benefits of openness are spread across the economy and cannot be attributed simply to improvements in growth.

Keywords: Trade openness, poverty, economic growth, panel data, WAEMU.

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1. Introduction

Trade openness, also known as trade liberalization, refers to economic policies that reduce barriers to international trade. These barriers can take the form of tariffs, import quotas, non-tariff restrictions, subsidies, and other regulations that restrict the movement of goods and services between countries. Proponents of open trade argue that it can boost economic growth by promoting competition, improving efficiency and providing consumers with a wider range of choices, thereby helping to reduce poverty. This thesis was confirmed, between the end of the 18th and the beginning of the 19th century, by the pioneering work of classical economists. As for poverty, it is a complex and multidimensional phenomenon. It can be defined in a variety of ways, but is generally conceptualized as a state of deficiency in the material, financial, or social resources necessary to meet the basic needs of a person or community. This situation of lack can affect several aspects of life, such as food, housing, education, health and social participation. We can consider different dimensions of poverty, notably monetary poverty, effective in terms of income or standard of living, as well as multidimensional poverty, taking into account various factors such as access to education, health care drinking water and other essential services. The World Bank favors the notion of monetary poverty which uses that of the "poverty threshold", even if it recognizes the multidimensional nature of the concept and does not deny the interest that the analysis of this human dimension can have. The "poverty line" indicates the income level below which a household is considered poor.

The impact of trade openness on poverty has attracted considerable interest in recent decades, dating back to the seminal work of Adam Smith (1776) and David Ricardo (1817). According to the liberal theses of these authors, international trade is considered the pillar of development and the reduction of poverty. These doctrines emerged from classical exchange theories, later supported by economists such as Mill (1873), Rostow (1988), Brasscul (1989), and Friedman (1962). According to these authors, trade openness is considered a factor contributing to poverty reduction in developing countries. These liberal theories would later be supported and revived by Bretton Woods institutions such as the International Monetary Fund (IMF) and the World Bank (WB). Structural adjustment programs constitute an example (Bouabré and Kouassi, 1997) cited by Koné (2024). They argue that trade openness guarantees poor countries' access to the most advanced technologies, which allows their companies to strengthen their capacity to develop and consolidate positions in export markets.

In this way, like many developing countries, trade liberalization in WAEMU member countries began with the implementation of the Structural Adjustment Program (SAP) in the early 1980s. During this period, countries undertook a broad program of economic reforms, mainly focused on the unilateral liberalization of key sectors (Gbetnkom and Avom, 2005). However, towards the end of the 1990s, these trade opening policies were called into question due to their negative social impacts in most WAEMU countries. Since then, debates over the relationship between trade openness and poverty

reduction have been at the heart of discussions.Some authors argue that trade openness helps reduce poverty in developing countries. Proponents of this thesis consider that trade openness has a positive influence on the income of the poor in various ways, notably through its effects on economic growth, relative prices, macroeconomic stability and government revenues (McCulloch and Winters, 2001, Winters, 2002, Dollar and Kraay, 2020 and Winters et al, 2004). They argue that openness is beneficial when accompanied by appropriate complementary policies. They argue that trade can benefit disadvantaged populations by boosting economic growth through several mechanisms, such as more efficient allocation of resources, market enlargement that provides greater incentives for more productive firms to innovate, increasing productivity, access to new technologies, foreign direct investment, and improving general living conditions, including improving schooling, increasing life expectancy, and access to basic services (Balogoun, 2016). This theory is not unanimous because in certain situations, trade opening does not necessarily lead to a reduction in poverty.Some even go so far as to assert that it has a negative impact on the rate of economic growth in the medium term by favoring specialization in low-technology sectors. Indeed, countries whose infrastructures are poorly adapted and incapable of competing with the industries of developed countries cannot benefit from trade opening. According to these critics, considering trade openness as an instrument of success for contemporary economies, especially in poorer countries, is an illusion (Pritchett, 1994; Rodriguez and Rodrik, 1999; Rodrik, 2001; Stiglitz, 2004). Aware of the structures that are unsuitable for taking full advantage of the benefits of trade openness in the fight against poverty, developing countries, particularly those in the WAEMU, have put in place various policies aimed at revitalizing their industrial sectors through reforms. The expected results of these policies have enabled union businesses to become competitive. This competitiveness of community businesses, as well as other sectors of activity, has supported economic growth and, consequently, poverty reduction in the WAEMU zone. In fact, we observe that between 1993 and 2021, the level of exports of member countries has experienced a notable improvement. This is evidenced by the fact that in 2017, exports of goods and services in the UEMOA area increased by 5.7% compared to their 2016 level. Côte d'Ivoire (36.9%) and Senegal (21.6%) together represent around 60% of these exports within the union (UEMOA, 2015).In terms of living conditions, the countries of the Union are among the low-income or lower-middle-income nations, where almost half of the population lives in poverty, that is to say below the international poverty line set at $1.25 per day in 2008 (World Bank, 2001). The poverty rate increased from 10% in 1985 to over 32.6% in 2002. In 2015, the incidence of poverty was 46.3%, the depth of poverty was 16.3%, and the severity of poverty by 8.0%. By examining the evolution of these indicators, it is difficult to clearly discern the relationship between trade openness and its effect on poverty reduction in WAEMU countries. Considering these developments, it is essential to understand the extent to which trade openness contributes to poverty reduction in WAEMU countries. The overall objective of this article is to analyze the effects of trade opening on poverty in this region. To achieve this objective, the paper is organized as follows. After a brief review of the literature on the

relationship between trade openness and poverty, the presentation of the methodological framework will lead to results which will then be interpreted. Finally, a conclusion will summarize the results and make recommendations.

2. Literature review

The doctrines of free trade were formed from the theories of classical exchange defended by Adam Smith (1776) and David Ricardo (1817). The goal of classical theories is to show that free trade is a factor of growth for the countries that participate in it. However, the relationship between trade openness and poverty alleviation has given rise to divergent views in the economic literature both theoretically and empirically. Indeed, two essential theories make contradictory predictions about the relationship between trade openness and economic growth through poverty reduction. These include the heterodox thesis which supports classical thought and that of the orthodox which maintains that trade opening on the contrary does not necessarily lead to the reduction of poverty.

The first, based on the work of the classics, attempted to estimate the relationship between trade and poverty. Precisely, during the 1990s, the belief that openness is beneficial to economic growth was reinforced by several highly visible and widely promoted international studies. The majority of these cross-national empirical studies appear to support the idea that trade openness leads to faster growth and economic growth leads to poverty reduction, as illustrated in the influential papers by Jeffrey Sachs and Andrew Warner (1995) and David Dollar and Aart Kraay (2000 and 2001). For them, international trade is extremely important for growth and poverty reduction in least developed countries David Dollar (1992) McCulloch, Winters, Cicera, (2002).Their work shows that trade contributes to reducing poverty in developing countries. Brasseul (1989) emphasizes that international trade is one of the engines of growth and trade from which participating countries benefit, whatever their level of development. Krugman (1991) goes further to argue that trade leads to international specialization, in which each country moves its labor force from relatively unproductive industries to relatively more productive industries. Michalet (1985) adds that free trade based on comparative advantages leads to a situation of optimal allocation of factors and therefore to maximum well-being. As for Charles Jones (2001, p. 337), he argues that despite uncertainty about the magnitude of the effect of trade, our best estimate shows that trade restrictions have a negative long-term impact on income.

And Rodriguez and Rodrick admit that there is no reliable evidence that trade restrictions are systematically linked to higher growth. For Wolfowitz (2005), trade barriers are one of the biggest obstacles to reducing poverty and creating opportunities for the poor.

At the empirical level, studies have shown that trade openness is a factor which essentially contributes to poverty reduction (Winters et al. 2004, Bannister G.J. and Thugge K. (2001), Wade R. H. (2004)).

They show that liberalization is a path to improving general living conditions, such as improving schooling, increasing life expectancy, and providing basic services or drinking water.

More recent work (Le Goff and Singh, 2012; Hérault, 2015; Eladel, 2014; Balogoun, 2016) also concludes that in certain countries, trade liberalization benefits the poor by reducing inequalities between rich and poor. Some empirical works (David et al, 2002; Winters et al., 2004; Dhrifi, 2008; Annabi et al, 2008; Tene, 2019) maintain that trade liberalization reduces poverty but in the long term.

Dhrifi (2008) shows on the basis of a panel regression model on a sample of MENA countries for data over the interval 1993-2021, that trade openness is capable of reducing the incidence of absolute poverty beyond its impact through growth. Indeed, according to him, a 1% increase in the international trade rate would reduce the poverty rate by 21%. But trade reform also involves significant adjustments, and it is clear that the poor may be less well positioned in the short term to protect themselves against negative effects and take advantage of favorable opportunities. Annabi et al (2008), use a dynamic microsimulated CGEM model to assess the potential effects of trade liberalization on production, poverty and inequality in Senegal.

Their study shows that the complete elimination of tariffs in Senegal leads, in the short term, to a slight increase in poverty and inequality and to contractions in the agricultural and industrial sectors. In the long term, it promotes capital accumulation, particularly in the service and industrial sectors, and results in a significant reduction in poverty. In the same vein, Tene (2019), using a macro-regression model based on a generalized linear model with a Bernoulli distribution and a logistic link, analyzes the impact of international trade on multidimensional poverty in Cameroon. Their result shows that international trade significantly reduces multidimensional poverty in Cameroon. This impact is reinforced by infrastructure.

The UEMOA area has been the subject of a handful of studies. These are those of Lemzoudi (2005), Annabi and al. (2006).

The second group of economists believes that globalization appears to be a system that polarizes the world and, contrary to liberal ideas, only increases inequalities between countries. A certain number of authors (Pritchett, 1996; Rodrik, 1995; Rodriguez and Rodrik, 1999) express uncertainty as to the existence of a positive relationship between trade openness and poverty reduction. Berg and Krueger (2003) argue that trade openness has no systematic effects on the poor beyond its effect on overall growth.

Others go further to assert that it worsens poverty and inequality in urban areas and actually decreases in rural areas (Bensidoun and Sztulman (2011; Castilho et al., 2012). This argument is defended by Ravallion (2004) which highlights, based on growth events for 75 countries, a negative correlation between openness rate (exports+imports/GDP) and incidence of absolute poverty at the threshold of 1 USD PPP of 1993. Still in the same period, UNCTAD (2004), based on a study of export trends and poverty in least developed countries in the 1990s, shows that trade does not

generally contribute to poverty reduction. Vein, Singh and Huang (2011) found that, in a sample of sub-Saharan African countries, higher levels of trade openness were associated with greater increases in per capita poverty, wider poverty gaps, higher incomes for the top quintile and a reduction in poverty. Furthermore, in other countries, the results have been more unfavorable, suggesting that liberalization will contribute to widening the gap between different social classes (C. Daymon, 2012).

The literature does not produce consistent results on the relationship between trade openness and poverty, so it is interesting to deepen this analysis by examining the transmission channels. According to winters and al. (2004), the main transmission channel most studied is macroeconomic in nature. So, if we accept this, we can infer that openness promotes growth and should generally have a beneficial impact on poverty Balogoun (2016).

3. Model specification and estimation technique

In this paragraph, the econometric model and the estimation technique will be first presented and then the estimation results and their interpretations.

3.1. Model specification

The literature offers various models to study the impact of trade openness on poverty. Some authors use cross-sectional data with threshold effect, while others use dynamic panel data with methods such as the Generalized Method of Moments (GMM), the VAR model, or the Pool Mean Group (PMG). As part of these approaches, the econometric model used in this article is an adaptation of the poverty equation of Balogun (2016) used by Koné (2023). In this model, the poverty indicator is regressed on trade openness as well as on a set of variables likely to explain poverty. These variables include the poverty ratio at $3.20 per day, the poverty gap at the national poverty line, the national poverty rate, the human development index (HDI), and the mortality rate (Tauxmortal).

To elucidate this relationship, fixed and random effects econometric methods are employed by analyzing several measures of well-being and poverty (dependent variables). The explanatory variables of interest are trade openness and the growth rate of real GDP per capita. Real GDP per capita (TPIB) is used to control poverty which influences the level of trade and to take into account the effects of growth on poverty. The specification of the fixed effect model is therefore as follows:

$$IP_{it} = \alpha_i + \alpha_1 OUV_{it} + \alpha_2 X_{it} + \varepsilon_{it} \qquad (1)\ RL$$

$$IP_{it} = \alpha_i + \alpha_1 OUV_{it} + \alpha_2 OUV_{it} TPIB_{it} + \alpha_3 X_{it} + \alpha_{it} \qquad (2)\ RNL$$

Or ***IP*** the endogenous variable represents the poverty indicator, measured by the poverty ratio at $3.20 per day, the poverty gap at the national poverty line, the national poverty rate, the human development index (HDI), and the mortality rate (Taux_mortal). The variable ***OUV*** represents the opening rate; ***TPIB***, the growth rate of GDP per capita; ***Xit*** a set of control variables; αi the individual fixed effect, ε

the disturbance, ***i*** the individual dimension and ***t*** the temporal dimension; ***OUVTPIB***, term for interaction between trade openness and economic growth. All of these variables are in percentages. A limitation of the fixed effects model is that in the presence of individual effects, a large number of parameters must be estimated, thus reducing the statistical degrees of freedom. Additionally, the model assumes that individual effects are constant, although they may be random. To overcome this difficulty, it is often recommended to supplement the fixed effects model with a random effects model.

The specification of the random effects model is:

$IP_{it} = \alpha_0 + \alpha_1 OUV_{it} + \alpha_2 X_{it} + \varepsilon_{it}$ *(3) RL*

$IP_t = \alpha_0 + \alpha_1 OUV_{it} + \alpha_2 OUV_{it} TPIB_{it} + \alpha_3 X_{it} + \alpha_{it}$ *(4) RNL*

$\varepsilon it = \alpha i + uit$, or$\alpha i$ and $uit$are random disturbances, uncorrelated and designated respectively as the individual effect and the residual effect, are integrated into the model. It is crucial to note that the random variable is in no way a constant specific to each individual, but rather a disturbance specific to each individual. Subsequently, we introduce an interaction variable into the econometric models used, which involves trade openness and economic growth. The threshold effect is only observable if the coefficients of the trade openness, economic growth and interaction variables are significant. The value of the threshold is determined by the solution of the equation of the partial derivative of the endogenous variable with respect to the governance variable. Either,

$$\frac{\partial IP}{\partial OUV} = 0 \Rightarrow \alpha_1 + \alpha_2 TPIB_{it} = 0 \Rightarrow TPIB^* = -\alpha_1/\alpha_2 \quad (5)$$

With ***TPIB****.

3.2. Definition of variables and data sources

This paragraph describes the variables used for the econometric examination of the study and subsequently the source and exploratory analysis of the data.

The **trade openness rate (TOR)** is defined as the exogenous variable, calculated by taking the ratio between the sum of imports and exports of goods and services and the gross domestic product (GDP). Regarding endogenous variables, our database consists of two categories of variables. The latter are social variables, considered as measures of poverty, and serve as explanatory variables of interest. Among them, we find the **mortality rate** variable (**mortal Rate**), an indicator of human capital which makes it possible to assess to a certain extent the degree of vulnerability of populations. This indicator traces the weight of deaths in a population during a given period. In order to understand the level of poverty, we also use direct poverty indicators which reflect the depth, breadth and severity of poverty. Direct measures of poverty are:

- **the poverty ratio at $3.20 per day (PPP)** measuring the population of different countries living below the respective thresholds of $3.20 per day;
- **the poverty gap at the national poverty line (poverty gap)** is the shortfall in earnings to rise above the poverty line (considering that the non-poor have a shortfall of zero) expressed as a percentage of the threshold national level of urban poverty;

- **the national poverty rate (poorratio),** which is the ratio of the poor population according to the national poverty line, is the percentage of the population that lives below the national poverty line. National estimates are based on population weights from household surveys;
- **the human development index (HDI)** which measures human development by integrating individual and collective information on the well-being of populations into economic production.

For Agénor (2003), the incidence of poverty is controlled by the impact of a series of variables such as trade openness, the poverty gap at the national poverty line (poverty gap), the poverty rate national (poor_ratio), the human development index (HDI), the national poverty rate (poor_ratio) etc…

We employed macroeconomic variables to control the regression equation and allow better specification of the model. These variables are used to adjust the impact of a trade openness policy on poverty, going beyond its repercussions through economic growth. These variables include:

- **credit to the economy (M2)** which is the ratio of the monetary mass M2 to the Gross Domestic Product;
- **the economic growth rate (TPIB)** which assesses the growth in production of a country from one year to the next;
- **investment expenditure as a percentage of GDP (Invest)** measured through gross fixed capital formation in relation to GDP;
- **Government expenditure (Government)** measured through final consumption expenditure of public administrations;
- **inflation (Inflat)** which is an economic aggregate which measures the cost of living. Its role in the model is to intercept the impact of macroeconomic stabilization on poverty. In the case of this paper, we used the consumer price index to understand this aggregate.

3.1.1. Data source and descriptive analysis

The study concerns all eight (8) WAEMU countries; the choice of this area is explained by the increase in its poverty rate. The data used in this paper come from the World Bank database, World Development Indicator (WDI) over the period from 1993 to 2021. The database is not cylindrical, it is therefore essential to carry out a descriptive analysis.

Table 1: shows the summary of the results of the descriptive analysis

VARIABLES	Average	Standard Deviation	Maximum	Minimum
OPENING	0,556	0,182	0,799	0,307
MORTAL RATE	11,594	2,228	15,021	9,105
DHI	0,483	0,193	0,780	0,303
POVERTY RATIO	43,957	5,692	51,100	36,200
POVERTY GAP	16,986	5,250	25,400	10,500

320 POVERTY	73,157	11,345	83,300	56,500
INFLAT	1,804	1,425	3,077	-1,006
INVEST	22,536	8,565	38,326	10,071
TPIB	0,959	3,473	6,132	-3,828
M2	29,195	6,257	36,092	19,496
GOUV	17,276	4,168	22,554	11,941

Source: the author based on World Bank data

Table 1 summarizes the main descriptive statistics of the model variables. It appears that the average economic openness rate of all the countries studied over the period from 1993 to 2021 is 0.56%. The highest rate, i.e. 0.80%, was recorded in Côte d'Ivoire in 2002. In 2003, Burkina Faso had the lowest openness rate, i.e. 0.31%, among all the countries of the survey.

The average mortality rate and the Human Development Index (HDI) stand at 11.59% and 0.48% respectively. In 2002, Côte d'Ivoire had the highest mortality rate, reaching 15.02%, as well as the highest HDI of 0.78% in 2015. Conversely, Burkina Faso holds the highest mortality rate the lowest in 2014, 9.11%, as well as the lowest HDI of 0.30%.

The national poverty rate, the poverty gap at the national poverty line and the poverty ratio at $3.20 per day displayed, for all the countries in the study base, respective average values of 43, 96%, 16.99% and 73.16%.

The consumer price index for the eight countries varies from 3.08% (Côte d'Ivoire in 2002) to -1.01 (Benin in 2014). The countries with the highest inflation rates are generally those that have gone through wars, economic, monetary and institutional crises. Average government spending stands at 17.28% of countries' GDP, while the average share of investment spending is 22.54%. Finally, average economic growth is 0.96%, although this growth rate conceals significant disparities between different countries. The highest growth rate (6.13%) is observed in Côte d'Ivoire in 2015, while the lowest rate (3.83%) is recorded in Côte d'Ivoire in 2002. The average ratio of the M2 money supply relative to GDP is 29.19%.

3.2. Results of econometric tests

Tests will be studied in this section. These are the unit root tests, the Fisher test, the Hausman test and the Breusch-Pagan test.

3.2.1. Panel unit root tests

This section allows us to see if our series are stationary because we used a macroeconomic series which is rarely stable.

Table 2: Panel unit root tests

	LLC Tests		IPS Tests	
Variables	I(0)	I(1)	I(0)	I(1)
OPENING	-2.29856	-9.62159	-3.28635	-12.3055
	(0.0108**)	(0.0000***)	(0.0005***)	(0.0000***)
MORTAL RATE	-7.8998	-12.3978	-2.23248	-6.17363
	(0.0000***)	(0.0000***)	(0.0128**)	(0.0000***)
DHI	1.37278	-7.19319	4.22265	-6.6768
	(0.9151)	(0.0000***)	(1.0000)	(0.0000***)
INFLAT	-12.0088	-2.14928	-9.25646	-12.8294
	(0.0000*)	(0.0158**)	(0.0000)	(0.0000***)
INVEST	-1.55303	-13.7179	-1.83969	-13.2777
	(0.0602***)	(0.0000***)	(0.0329)	(0.0000***)
M2	4.10153	-11.0017	4.89693	-9.70701
	(1.0000)	(0.0000***)	(1.0000)	(0.0000***)
GOUV	-1.69015	-8.72662	-2.97698	-10.4622
	(0.0455**)	(0.0000***)	(0.0015)	(0.0000***)
TPIB	-9.49806	-17.2142	-11.1161	-18.5403
	(0.0000***)	(0.0000***)	(0.0000)	(0.0000***)

Notes: IPS, LLC and MW refer to the tests of Im, Pesaran & Shin (2003), Levin, Lin & Chu (2002) and Maddala & Wu (1999) (Fisher-ADF), respectively. Values in parentheses are probabilities, * and ** mean the rejection of the unit root hypothesis at the respective significance level of 10% and 5%. Rejection of the null hypothesis (p-value<5%) indicates the absence of a unit root.

Source: Author's calculations based on World Bank data

The results indicate that when all panel variables are considered as first differences, all panel variables do not have unit roots and are therefore non-stationary. As the panel is not cylindrical, we did not test stationarity on certain variables, namely the poverty gap at the national poverty line, the poverty rate as a function of the national poverty line, the poverty rate at time $3.20/day.

3.1.1. Fisher tests, Breusch-Pagan and Hausman tests

The results of these tests are recorded in Table No. 3.

Table 3: Fisher, Breusch-Pagan and Hausman tests

Variables	Fisher test	Breusch-Pagan test	Hausman test
mortal Rate	F(6, 185) = 35.26 Prob > F = 0.0000	chibar2(01) = 181.09 Prob>chibar2 = 0.0000	chi2(6) = 0.62 Prob > chi2 = 0.9960
poverty gap	F(6, 9) = 0.53 Prob > F = 0.7706	chibar2(01) = 0.00 Prob > chibar2 = 1.0000	chi2(6) = 22.38 Prob > chi2 = 0.0010
Poverty Ratio	F(6, 16) = 0.78 Prob > F = 0.6007	chibar2(01) = 17.94 Prob > chibar2 = 0.0000	chi2(6) = 0.61 Prob > chi2 = 0.9962

320 Poverty	F(6, 22) = 4.20 Prob > F = 0.0058	chibar2(01) = 12.17 Prob > chibar2 = 0.0002	chi2(6) = 0.97 Prob > chi2 = 0.9866
DHI	F(6, 185) = 29.95 Prob > F = 0.0000	chibar2(01) = 1103.88 Prob > chibar2 = 0.0000	chi2(6) = 0.54 Prob > chi2 = 0.9973

Source: Author's calculations based on World Bank data

The Fisher statistic confirms two important findings. On the one hand, it validates the existence of individual fixed effects in the explanation of the mortality rate, the poverty ratio at $3.20 per day (PPP), and the Human Development Index by set of explanatory variables.

On the other hand, it indicates the absence of temporal fixed effects in the explanation of the poverty gap at the national poverty line and the national poverty rate.

According to the Breusch-Pagan test, the presence of random fixed effects is observed in the explanation of the mortality rate, the national poverty rate, the poverty ratio at $3.20 per day (PPP), and the Human Development Index. On the other hand, there are no random fixed effects in the explanation of the poverty gap at the national poverty line.

The choice between a fixed effects panel data model and a random effects model is mainly based on the objectives of the study and the Hausman criterion. Based on this criterion, we adopt the results of the random effects panel model for the analysis and interpretation of the national poverty rate, the poverty ratio at $3.20 per day (PPP) and the Index of human development. As for the analysis and interpretation of the poverty gap at the national poverty threshold, we rely on the results of the panel model with corrective effects. This approach will allow the specific characteristics of the data to be taken into account and the most appropriate methodology to be applied for each variable of interest.

4. Presentation of results and discussion

Table No. 4 presents the different results obtained.

The variables which measure our endogenous variable were successively developed by all the variables of our basic model.

Table 4: Summary table of robust models

	EA	EA	EA	EA	EF
Variables	Mortal Rate	Poverty Ratio	DHI	320Poverty	poverty gap
OUV	-3.06801	-13.55022	0.0603446	-80.46306*	-44.20383*
	(2.971402)	(29.83718)	(0.051118)	(42.61759)	(17.91936)
INFLAT	0.0816436***	1.431671*	-0.0008888***	0.4379431*	1.273593**
	(0.0147672)	(0.7883781)	(0.0002467)	0.2304054	(0.3708379)
INVEST	-0.1334298***	-0.0481487	0.0023031***	0.0241158	0.0303021
	(0.0247287)	(0.3140322)	(0.0004199)	(0.3648936)	(0.315774)

TPIB	-0.0247891	0.4124452	0.0002463	0.5591317	0.4687942
	(0.0327982)	(0.3194456)	(0.0005472)	(0.8673168	(0.2814438)
M2	-0.1477116***	0.1373302	0.0025112***	-0.3179874	-0.1348124
	(0.0192797)	(0.2303183)	(0.0003245)	(0.4142143	(0.1399245)
GOUV	-0.0376097	-0.6938599	0.0016996*	0.5444947	0.01904
	(0.0574769)	(0.6084871)	(0.0009886)	(0.8212667	(0.4998695)
C	20.06586***	56.8107***	0.2875134***	72.02299***	30.79903**
	(1.316437)	(11.45315)	(0.0645134)	(2.68463)	(6.666018)
Remark	192	23	192	29	16
R-squared	0.5101	0.1836	0.0505	0.4846	0.0617

*Notes: Values in parentheses denote standard deviations; ** significant at the 5% level; *significant at the 10% level and *** significant at the 1% level*

Source: Author's calculations based on World Bank data

4.1. Trade openness, national poverty rate, mortality rate and the human development index (HDI)

Our estimation results indicate that increasing investments and money supply have a significant and negative impact on the mortality rate. Indeed, an increase in investments seems to reduce the mortality rate in the WAEMU zone by 13.34%. Investments play a major role in creating jobs, adopting new techniques and growing economic output, thus establishing a strong link with economic growth. Similarly, an increase in the coefficient of M2 also contributes to a reduction in the mortality rate by 14.77%.

Regarding inflation, this leads to a significant increase in the mortality rate as well as the national poverty rate. Indeed, in an economy subject to inflation, rising prices reduce the purchasing power of the most disadvantaged households, thus contributing to worsening poverty. Additionally, during periods of inflation, access to health care becomes difficult due to excessive costs of benefits and pharmaceuticals. Consequently, a large part of the population remains exposed to health problems, which results in an increase in the mortality rate.

Variables having a positive impact on the Human Development Index (HDI) for all the countries in the study include government spending, investment spending and money supply. Investment presents itself as a source of additional income, and an increase in investment spending creates new production opportunities, thus promoting employment and contributing positively to the HDI. Indeed, a 1% of these variables will respectively lead to an increase of 0.17%, 0.23% and 0.25% of the HDI.

As for inflation, its negative and significant effect on the HDI is notable. This situation can lead to a reduction in the purchasing power of the population. Rising costs related to education and health may make access to these services more difficult for disadvantaged populations, thereby impacting the education and health components of the HDI.

4.2. Trade openness, poverty gap at the national poverty line and poverty ratio at $3.20 per day (PPP)

The coefficient of the openness indicator has the expected negative sign and is significant. It represents the direct impact of trade on poverty, thereby improving the income of the poor. Indeed, increasing the rate of openness of the economy leads to reductions in the number of people living on less than $3.20. Trade liberalization policies encourage exports which benefit exporting industries and contribute to GDP growth through three sub-channels which are exports, imports and capital inflows. These different channels make it possible to reduce poverty. This supports the hypothesis that international trade can reduce poverty. Because each percentage point increase in the level of trade would reduce the poverty rate by 80.46 percentage points. We can therefore conclude that trade opening contributes to reducing the proportion of the poor population in WAEMU. This result is consistent with that of winters, McCulloch and McKay (2004) who confirms that trade liberalization tends to reduce poverty.

Our results also indicate that the openness rate negatively and significantly influences the poverty gap at the national threshold. An increase in the openness rate leads to a reduction of 44.20% in the poverty gap.

The sign of inflation is positive and significant on the poverty variables. Indeed, an increase in inflation leads to an increase in the number of people living on $3.20 per day and the poverty gap at the national threshold. This situation results in a drop in the purchasing power of the currency, thus leading to an increase in individuals living below the national poverty line.

5. Conclusion

The objective of this paper is to analyze the effects of trade opening on poverty in the countries of the WAEMU area. To do this, we used panel data for a sample of the eight countries in the WAEMU region over the period 1993 to 2021. Estimation of various models, namely homogeneous model (pooled regression) analyzing panel data with effects fixed and random to explain the relationship between different indicators of well-being and poverty (dependent variables) and trade openness (exogenous variable of interest). We then test for the presence of growth channels through which trade openness impacts growth, poverty and well-being using a quadratic model including variables calculated from the interaction between trade openness and growth.

Our results show a general trend according to which trade openness reduces poverty, at least beyond its indirect impact through economic growth, that is to say by reducing the number of people living on $3.20 per day. However, trade liberalization should not be considered in isolation; it is necessary to implement support measures to increase its beneficial impact on poverty.

The economic policy recommendations of this paper are that WAEMU member states should increase their efforts to increase public investment. These projects aim in particular to build basic socio-economic infrastructure to encourage access to education, electricity, health, drinking water and sanitation in order to further reduce rates of poverty. In this paper, we examine a group of countries, which may bias the conclusions we draw when considering each country individually. It would then be interesting to carry out this study country by country.

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