

Social Protection and Economic Growth in ECOWAS zone

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Abstract

This study was applied in ECOWAS countries where mortality rates still remain a concern and this correlates with the low level of social protection despite the numerous social protection policies and systems implemented to improve the living conditions of the most vulnerable populations.

The objective of the paper is to analyze the link between social protection and economic growth in ECOWAS countries. Using data from the World Bank WDI (2022), the econometric approaches used are causal analysis based on Granger causality and the DOLS estimation technique.

On the one hand, there is a unidirectional relationship between social protection and economic growth in ECOWAS countries. On the other hand, social protection improves economic growth through per capita income in the ECOWAS zone. In conclusion, social protection significantly improves economic growth. Therefore, the implications of economic and social policies should be to emphasize social protection which could improve human capital capable of guaranteeing sustainable development.

JEL classification: H55, O47, E24, C51.

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1. Introduction

After World War the Second, the development and implementation of a national social protection policy became important, due to the awareness that social security is a fundamental human right. Article 25 of the Universal Declaration of Human Rights (UDHR) states that “Everyone has the right to a standard of living adequate for the health and well-being of himself and his family, including nutrition, clothing, housing, medical care and necessary social services; he has the right to security in case of unemployment, illness, disability, widowhood, old age or in other cases of loss of her means of subsistence as a result of circumstances beyond her control. According to the Social Protection Inter-Agency Assessment Initiative (ISPA) “Social protection refers to a set of policies and programs intended to prevent and protect all individuals, and more particularly vulnerable groups, against poverty, vulnerability, and social exclusion during different stages of life. This is the reason why the United Nations, through the social protection floor initiative, invited countries to establish social protection systems or to strengthen existing ones (Bureau International du Travail, 2010). The Sustainable Development Goals (SDGs), adopted in 2015, also show countries' commitment to "put in place social protection systems and measures for all, adapted to the national context, including floors" in order to eliminate poverty in all its forms, solving the problem of climate change, reducing inequalities and injustice and putting in place social protection measures for all. The debate on the question of the importance of protection in the economy is not contemporary. Much of the debate on social protection systems revolves around the relationship between the objective of equity and the objective of growth. Indeed, the impact of social protection on growth divides the opinion of theorists. Overall, the lessons that can be drawn from these theories do not allow us to form a clear opinion on this question. A first thesis, initiated by (Mirrlees, J. A., 1971) as part of a reflection on optimal taxation, highlights a negative effect of social protection on growth. The payment of social benefits could reduce the labor supply and therefore the labor resources on which growth relies, as beneficiaries are no longer encouraged to look for work. In addition, these benefits have the Different arguments oppose this very negative conception of social protection. First, by avoiding the marginalization of the poorest and their lasting exit from the productive counterpart of the establishment of a system of deductions likely to slow down savings and therefore investments, a source of economic growth. This is consistent with the opinions of other theorists Vanhoudt, P. (1997); Gwartney, J., Lawson, R., & Holcombe, R. (1998); Atkinson, A. B. (1999); Milanovic, B. (1999); Tabellini, G. (2000).

System, social protection helps strengthen growth potential (Parent, A., 2001). Then, by limiting social tensions, it establishes a climate favorable to making political and economic decisions, even difficult ones. This can improve the prospects for sustainable development, Sala-i-Martin, X. (1996).

At the level of Breton Woods's institutions, recent work by the World Bank has shown the role that social protection plays in accelerating growth. Analyzes of the financial crisis that hit East Asian countries in 1997-1998 revealed that growth was not sufficient to ensure poverty reduction. Indeed, the relative family organization which was supposed to ensure solidarity to cope with shocks turns out to be insufficient when a shock occurs in a context of rapid growth. Social protection constitutes one of the fundamental pillars and takes on a particular dimension in its transversal functions compared to the other pillars of “Decent Work” which are social dialogue, work and standards.

Generally speaking, economic analyzes of the effects of social protection on growth have developed significantly in recent years and mostly focused on industrialized countries (OECD countries, for example). They are generally characterized by the introduction of a social protection indicator as an additional explanatory variable in growth models (Cashin, P. (1994), Castles, F. G., & Dowrick, S. (1990), and Lindert, P. H. (1996)). However, the insufficient availability of data related to protection measures has led certain authors to favor redistribution variables such as: the share of transfers in GDP Keefer, P., & Knack, S. (1995), the share of public expenditure on education, health and housing compared to social GDP (Devarajan, S., Swaroop, V., & Zou, H. (1996); Easterly, W., & Rebelo, S. (1993), Perotti, R. (1996), property rights Gwartney, J., Lawson, R., & Holcombe, R. (1998). This empirical work was facilitated by the availability of new econometric techniques which made it possible to overcome the problems of

endogeneity and omitted variables generally encountered in the estimation of growth models Caselli, F., Esquivel, G., & Lefort, F. (1996).

Despite these advances, the estimation results remain somewhat nuanced. Both theoretical and empirical literature related to the links between social protection and growth remains marked by numerous divergences which testify both its incompleteness and the need to restrict the analysis to particular cases.

In Africa, only 5% to 10% of the working population benefits from social security coverage, which indicates a deterioration of the situation over the last twenty years Banque Mondiale (2012). However, article 22 of the Declaration of Human Rights of 1948, which enshrines "the right of every human being to social security", indicates that the obligations of States in social matters require national effort but also international cooperation. In the majority of African countries, the economy is based on a bloated informal sector, which hinders the establishment of a general social protection system. Only employees and civil servants who represent barely 10% of the active population on average depending on the country benefit from it Organisation Internationale du Travail (OIT). (2017).

Furthermore, existing social protection systems are characterized by low coverage and above all a strong heterogeneity of actors and types of services. In 2010, around 123 types of social transfer programs were identified in 34 countries on the continent, and only 20% of the population benefited from a state social protection benefit Banque (Mondiale, 2012). In 2015, 17.8% of the population was covered by at least one social protection benefit ranging from 48% in South Africa to less than 10% in several West African countries (Organisation Internationale du Travail (OIT), 2017). Overall, 75% of sub-Saharan Africans do not have access to any form of social protection, despite its importance in the discourse on development policies Banque Mondiale (2012).

The West African sub-region continues to make relatively little progress in social development. Poverty continues to hamper sustainable development in West Africa despite sustained positive economic growth in recent decades. In 10 of the 15 ECOWAS countries, more than 30% of the population lives on less than \$1.90 per day. In addition, the emergence of the COVID-19 Coronavirus in China in early 2020 and its spread across the globe could hamper West Africa's growth prospects, with repercussions on weak social systems in many countries in the sub-region.

Today, social protection is faced with a dilemma. On the one hand, we note an inability of the public authorities to extend this social protection to the entire population, despite the efforts made so far. On the other hand, the perverse effects of the economic crisis have revealed the ineffectiveness of different social groups in ensuring the social protection of individuals. In urban areas, due to a lack of social benefits or unemployment benefits, a large part of the population, despite solid family solidarity, cannot meet their needs by being unemployed and must join the informal sector or forms of informal employment. Individuals living in rural areas must actively engage in precarious activities such as subsistence agriculture to cope with severe poverty. This increase in job insecurity makes prospects for social integration uncertain. The issues linked to the objectives of poverty reduction, growth and strengthening of an economy based on solidarity and human development place the social protection strategy at the heart of public policies in ECOWAS countries.

In view of all the divergent results of the impact of social protection on economic growth and taking into account the specificities of the West African economy, the present study aims at answering the question of knowing what is the link between social protection and economic growth of ECOWAS countries and what is the effect of social protection on the economic growth of ECOWAS countries? The general objective of this study is therefore to analyze the link between social protection and economic growth in ECOWAS countries. More specifically, it will be a question of studying on the one hand the causal relationship between social protection and economic growth and on the other hand of evaluating the effect of social protection on GDP per capita in the ECOWAS zone. Faced with this problem, this study has a double interest. On a theoretical level: given the rise in job insecurity and vulnerability in the ECOWAS zone, the implementation of social protection systems requires strong growth able to promote jobs and increase social contributions. . As a result, they constitute an important element in the implementation of growth and poverty reduction strategies which are at the heart of economic and social policy in West Africa. On a practical level, the interest will be identified through empirical evidence of the impact of social protection

on growth. And therefore, will make it possible to regulate social protection expenditure by avoiding waste of public funds, but also the direction to be given to social protection systems so that they are effective. Thus, the rest of the paper is structured in two parts. On the one hand it focuses on the literature review. On the other hand, it highlights the methodological approach, the interpretations of the results followed by the discussions and conclusion.

2. Overview of the literature on the link between Social protection and economic growth

2.1 Social protection theory

The development of social protection in industrialized countries has been influenced by major events such as the industrial revolution. Germany pioneered the creation of a social health insurance system under the impulse of Chancellor Bismarck (Smith, J., (1981) in the second half of the nineteenth century, in response to the risks faced by the new working class (Dupeyroux, J.-J., & al., 2000). This class, coming from the countryside, faced increased risks such as accidents at work, illness, maternity, old age and unemployment. Bismarck instituted a social policy that covered these risks in order to divert the workers from socialist ideas. The laws of 1883, 1884 and 1889 instituted compulsory sickness insurance, occupational accident insurance and pension insurance, all codified in 1911 in the Imperial Code of Social Insurance. This system was financed by contributions proportionate to wages and managed by treasuries administered by representatives of wage earners and employers. Other countries have adopted a different approach, inspired by Beveridge's philosophy.

This one, articulated in the Beveridge Report of 1942 and applied in post-war Britain, regarded social protection as a right for every citizen. The British National Health Service (NHS), established in 1948, provides free healthcare to the entire population through tax funding. These two philosophies, Bismarckian and Beveridgean, inspired social protection systems in industrialized countries. France, for example, adopted the Bismarckian system after 1918, while Anglo-Saxon countries, such as the United Kingdom and the Scandinavian countries, followed the Beveridgean inspiration. Today, industrialized countries can be classified into three categories in terms of disease coverage which are mainly tax-funded, providing free healthcare to the entire resident population. Examples: United Kingdom, Denmark, Sweden. There are also compulsory social insurance systems, covering wage and non-wage workers, financed by wage contributions and equally managed. Examples: France, Germany, Japan. Finally, mixed systems: Combining socio-occupational insurance and social assistance, with coverage insured by private companies for employees and a public scheme for the indigent. Example: United States.

Since World War II, these systems have evolved to cover a larger proportion of the population and offer accrued benefits, thereby contributing to poverty reduction and welfare improvement. The classical model is distinguished by a non-compulsory private individual insurance, financed by subscriber contributions, with benefits limited to the amount of premiums paid. In summary, the Bismarckian and Beveridgean models represent public health insurances, while the classical model refers to a commercial private health insurance Dupeyroux, J.-J., & al. (2000).

2.2 Human capital theory

Focuses on the importance of human capital for the growth process. Human capital is created simultaneously through experience in the production process (Learning by doing) and through formal education (Training.). Lucas considers human capital accumulation as a source of growth Lucas, R. E. (1988). The growth rate of human capital acquisition for an individual is proportional to the time of training and especially to the stock of human capital of that individual (the longer one is trained, the easier it is to progress in one's training). The output of a firm depends on the physical and human capital it employs, but also on the average level of human capital in the economy. This last characteristic, explained by Lucas, R. E. (1988), is described as follows: the effectiveness of human capital depends on its level in the economy. An individual is more productive if the level of human capital in the economy is high, i.e. if he is surrounded

by productive people. This explanation reflects the coaching effects that skilled individuals exert on one another D'Automne, A. (1994).

2.3 The Relationship Between Social Protection and Economic Growth

What are the circumstances in which social protection might hinder growth? If welfare schemes discourage people from working, the supply of labor in the economy decreases, which reduces the level of output and, in some cases, investment and, therefore, growth. When the social protection system discourages the population from saving, unless public saving increases by an equivalent amount, the amount of capital available for reinvestment decreases. Furthermore, the taxes that must be collected in order to finance social protection may make innovation less profitable. That is the thesis classically developed by (Mirrlees, J. A., 1971). In his study of the Scandinavian approach to social protection, Lindbeck, A. (1975), argues that the universality of the Scandinavian welfare state has “politicized” the issue of economic performance, in that people are encouraged to seek material well-being through the political process by pushing for the enactment of distributive laws and not through the engagement of economic activity. A term, there is a resultant loss of entrepreneurial ability and innovation capacity. Under what circumstances might social protection promote growth? Social security can broadly contribute to improving social welfare in economies where there is no rent market (Hubbard, R. G., & Judd, K. L., 1987) and where individuals have difficulty borrowing (Imrohoroglu, A., Imrohoroglu, S., & Joines, D. H., 1995). In this case, the presence of a social security system is beneficial to overall social welfare insofar as it provides the population with insurance against risks that the private sector has difficulty mutualizing and managing – disease, unemployment, etc.

In addition, and here is a factor of more direct interest to our proposal, this insurance allows individuals to take more risks in their economic behavior since it guarantees them (to a certain extent) in case of failure. Assuming that there is a positive relationship between a project's degree of risk and its expected rate of return, the insurance offered by social protection may promote growth (Ahmad, E., Dreze, J., Hills, J., & Sen, A., 1991). Other considerations suggest that social protection may be conducive to growth. A number of examples can be given of the type of argument advanced: social protection can foster social cohesion, from which a society is better able to even make “difficult” political and economic choices, which facilitates the 'structural adjustment'; social protection ensures that a category or social class does not remain so at the mercy of the general movement that it is unable to participate in the market economy, thus occasioning a permanent loss of production potential; the fact that putting children away from poverty can have long-term benefits on their social and intellectual development, etc. Indeed, it has become increasingly common for official statements and announcements on the objectives of social protection systems to refer to social protection as a “social investment” or a “productive factor”. In practice, when considering social protection as an investment, this means above all that we tend to privilege “employment-oriented social policies” and modify the balance between active and passive social expenditures by prioritizing the emphasis on the first ones. These concepts can be defined as being active policies intended to foster an uplift in the employment of beneficiaries. Passive policies simply operate as transfers of consumption from one category of society to another, in the form of monetary or service transfers.

If active measures succeed in increasing the supply of labor in the economy, they will promote growth. In other words, to the extent that this latter mechanism is important, the higher the share of active expenditure in total social expenditure, the more positive or negative the effects on growth will be. There this optics is consistent with the theory developed by (Bassanini, A., & Scarpetta, S., 2001), who considered that although is empirical evidence that tax negatively impacts growth, some categories of public expenditure - particularly public investment - could have positive effect.

3. Methodological review and methodology approach

This chapter is about specifying the empirical model, of presenting the different variables used and of explaining the methodological approach used to analyze the relationship between social protection and economic growth in the ECOWAS zone by using an econometric approach.

3.1 Basic model

The basic on justification model is based after consistent literature.

3.1.1 Model specification and justification

To analyze the relationship between social protection and economic growth, several estimation techniques have been used in the literature. Generally, in the literature, only the unidirectional relationship reflecting the effect of social protection on economic growth is validated. That's why, (Ezcurra, R., & Rodríguez-Pose, A., 2015) used a PCSE estimator to capture the long -term effect of social protection spending on economic growth in OECD countries. With the exception of this estimator, the literature refers to the MCO, FMOLS or DOLS estimates as well as the fixed or random effects to assess the effect of social protection on economic performance. The FMOLS method (Fully modified) studied by (Pedroni, P., 2000), makes it possible to take into account the problems of endogeneity, self -control and heteroscedasticity of the residues. While the DOLS (Dynamic Ordinary Least Squares) method makes it possible to estimate a more robust cornering relationship.

3.2 Presentation of the theoretical model

This section is devoted to the specification of the study model and the presentation of the model and the various tests.

3.2.1 The DOLS method

In order to analyze the effect of social protection on economic growth, the study is inspired by the work of (Ezcurra, R., & Rodríguez-Pose, A., 2015) on the effects of social protection on economic growth in a panel in the OECD.

The theoretical model based on an endogenous growth model is presented as follows:

$$g_{i,t} = \alpha + \beta \ln(Y)_{i,t} + \delta DSPE_{i,t} + \phi SPE_{i,t} + \varphi DTE_{i,t} + \gamma (DTE)^2_{i,t} + \theta X_{i,t} + \sum_i \mu_i + \sum_t \lambda_t + \varepsilon_{i,t} \quad (1)$$

$g_{i,t}$: Represents the growth of the real average GDP per capita in country i during period t .

$Y_{i,t}$: Initial level of real per capita growth in country i during period t .

$DSPE_{i,t}, SPE_{i,t}, DTE_{i,t}$: Social protection variables. These variables may include different measures of social protection such as public social spending, social transfers, etc.

$X_{i,t}$: Control variables. These include factors such as human capital (e.g., level of education), investment expenditures, and trade openness (e.g., degree of trade liberalization).

μ_i : Unobservable country-specific effects. This may include cultural, institutional, or other factors that are specific to each country but not directly measured.

$\lambda_{i,t}$; Common time effect across all countries. This could represent global shocks or worldwide trends affecting all countries simultaneously.

$\varepsilon_{i,t}$: Random perturbation term, capturing idiosyncratic shocks not explained by the other variables in the model.

3.2.2 The study model

Based on the work of the study by [20] on the effects of social protection on panel economic growth in the OECD, the model is specified as follows:

$$\text{Croiss_pib ht}_{i,t} = \alpha_i + \beta_1(IPS)_{i,t} + \beta_2(Tax)_{i,t} + \beta_3(\text{det_ext})_{i,t} + \beta_4(IDE)_{i,t} + \beta_5(Tscol)_{i,t} + \beta_6(\text{croiss_pop})_{i,t} + \beta_7(\text{inf lation})_{i,t} + \varepsilon_{i,t} \quad (2)$$

The description of the variables in our study is as follows: $\text{Croiss_pibht}_{i,t}$: Growth rate of GDP per capita; $IPS_{i,t}$: Social Protection Index; $Tax_{i,t}$: Tax pressure rate; $\text{dette_ext}_{i,t}$: External debt; $IDE_{i,t}$: Foreign direct investment; $Tscol_{i,t}$: Primary school enrollment rate; $\text{Croiss_pop}_{i,t}$: Population growth rate; $\text{inflation}_{i,t}$: Consumer price index growth rate; $\text{Croiss_pop}_{i,t}$: Random perturbation term.

3.3 Data sources and presentation of variables

The data related to the variables in this study are of secondary type. The fifteen ECOWAS countries were chosen. These are: Benin, Burkina Faso, Cape Verde, Ivory Coast, Gambia, Ghana, Guinea, Guinea Biseau, Liberia, Mali, Niger, Nigeria, Senegal, Sierra Leone, and Togo from 2000 to 2019. Below, it is question of carrying out the methodological approach used to analyze the relationship between social protection and growth in the ECOWAS zone. Table 1 summarizes the variables used in this study, their sources as well as the expected signs.

Table 1: Variable specification

<i>Variables</i>	<i>Description</i>	<i>Meaning</i>	<i>Data sources</i>
<i>Growth rate of GDP per inhab</i>	Growth rate of GDP per inhabitant	Growth rate of GDP per inhabitant in %.	WDI
<i>SPI</i>	Social Protection Index	Social Protection Index between 1 (Weak protection) and 6 (strong protection)	WDI
<i>Tax</i>	Fiscal revenue	Tax revenue in (% of GDP)	WDI
<i>Foreign debt</i>	Foreign debt	Foreign debt in (% of GDP)	WDI
<i>FDI</i>	Foreign Direct investment	Foreign Direct investment in percentage (%) of GDP	WDI
<i>Schooling rate</i>	Schooling rate	Number of primary enrollments as a percentage of the total	WDI
<i>Pop.Growth</i>	Population Growth	Population Growth in (%)	WDI
<i>Inflation</i>	Consumer Price index growth rate	Consumer Price index growth rate in (%)	WDI

Source: Author from the literature review

4. Presentation and interpretation of results

In this section, we will first present the analysis of the descriptive statistics and the correlation pairs and then check the level of stationarity of each of the study variables.

4.1 Descriptive analysis and correlation matrix

It will be appropriate to present successively in this subsection the descriptive statistics and the correlation matrix. Tables 2 and 3 present the descriptive statistics and the correlation pairs, respectively.

4.1.1 Descriptive analysis of variables

This analysis focuses on the descriptive statistics and the correlation pairs of the different variables. Table 2 below presents the descriptive statistics. The description of our variables allows us to know the characteristics of each variable.

Table 2: Descriptive statistics of variables

<i>Variable</i>	<i>Observation</i>	<i>Average</i>	<i>Standard deviation</i>	<i>Minimum</i>	<i>Maximum</i>
<i>Growth rate of GDP per inhab</i>	300	1,731	4,268	-31,333	21,027
<i>SPI</i>	300	3,058	0,543	2	4,5
<i>Tax</i>	300	10,888	3,458	3,37	22,13
<i>Foreign debt</i>	300	66,393	79,705	7,3	600,1
<i>FDI</i>	300	4,804638	10,44225	-2,54453	103,3374
<i>Schooling rate</i>	300	92,09038	20,485	32,35606	143,7252
<i>Growth rate</i>	300	2,685	0,614	1,128	5,363
<i>Inflation</i>	300	6,953	12,684	-7,901	100,607

Source: Author, from the data of Banque Mondiale (2022)

The results of the table show that the per capita growth rate between 2000 and 2019 is 1.73% on average in ECOWAS countries. The lowest value comes from Liberia in 2003. This could be due to the crisis that the country suffered during this period. The Social Protection Index measures social protection policies and social protection expenditures evidenced in each country. A value of 3 out of 6 reflects the presence of social policy at 50% in the ECOWAS zone. The mobilization of tax resources in this region is on average 11%. This figure reflects the low capacity of countries to generate internal resources to carry out effective social protection policies. The foreign debt in these countries is around 66%, reflecting the high level of indebtedness of the countries, given the lack of internal resources.

Concerning the primary school enrollment rate, it is between 32% and 143%, or an average of 92% reflecting the positive impact of educational policies in ECOWAS countries. Population growth is 2.68%. This growth is generally observed in Nigeria compared to other countries. Furthermore, inflation reflecting the general rise in prices is around 7% in the ECOWAS region. This reflects the high cost of living and the difficulty households have in meeting consumption needs, especially for vulnerable groups.

4.1.2 Analysis of correlation between variables

This analysis allows us to check whether or not there is a strong correlation between the variables. This analysis makes it possible to avoid multicollinearity problems. Thus, the relationship between our variables is established by the following matrix: 80 (strong correlation); 50 (average correlation).

Table 3: Correlation matrix

	<i>Growth rate of PDP per inhab</i>	<i>SPI</i>	<i>Tax</i>	<i>Foreign debt</i>	<i>FDI</i>	<i>Schooling rate</i>	<i>Pop Growth</i>	<i>Inflation</i>
<i>Growth rate of GDP per inhab</i>	1							
<i>SPI</i>	0,2358	1						
<i>Tax</i>	0,1867	0,455	1					
<i>Foreign debt</i>	-0,2154	-0,2308	-0,1850	1				
<i>FDI</i>	0,0068	-0,0457	0,1296	0,0766	1			
<i>Schooling rate</i>	0,1115	0,0763	0,1562	0,0668	0,1266	1		
<i>Population Growth</i>	0,0037	-0,3786	-0,3727	-0,0074	0,0067	-0,380	1	
<i>Inflation</i>	-0,0260	0,0492	-0,2154	0,0773	0,0392	-0,036	-0,0349	1

Source: Author, from the data of Banque Mondiale (2022)

The analysis of the table shows that there is a positive or negative correlation between all the variables. The correlation matrix shows that the determined variables are not strongly linked to the extent of 0.80. Otherwise in case of a strong correlation of the variables, then these variables should not be used simultaneously during the regression. Generally speaking, the correlation table reveals an absence of multicollinearity problems. This weak correlation between the explanatory variables can be confirmed using the VIF test. Thus, the VIF allows us to confirm the prediction of the correlation matrix established previously, the results of which are recorded in Table 4.

Table 4: VIF test results

<i>Variables</i>	<i>VIF</i>	<i>1:VIF</i>
<i>Tax</i>	1,53	0.653
<i>Pop. Growth</i>	1,47	0.681
<i>SPI</i>	1,45	0.687
<i>Schooling rate</i>	1,21	0.829
<i>Inflation</i>	1,10	0.905
<i>Foreign Debt</i>	1,10	0.910
<i>FDI</i>	1,07	0.936
<i>Mean VIF</i>	1,28	

Source: Author, from the data of Banque Mondiale (2022)

The results in the table show that the average VIF is 1.28, therefore less than 5. This level is acceptable according to the literature. According to several authors (Hair, J. F., Anderson, R. E., Tatham, R. L., & Black, W. C. (1995); Kennedy, P. (1992); Marquardt, D. W., & Snee, R. D. (1970)), the maximum VIF level corresponds to 10, and even if the recommendation corresponds to 5, the average VIF level of our

explanatory variables is acceptable. Thus, the absence of multicollinearity problem is an advantage for regression without bias problem.

4.2 Variable stationarity tests

The question of heterogeneity, absent in time series, affects in panel data, both the model parameters and the autoregressive root. Thus, two generations of unit root tests have emerged: first generation tests (Levin, A., Lin, C.-F., & Chu, C.-S. J. (2002); Im, K. S., Pesaran, M. H., & Shin, Y. (2003); Hadri, K. (2000); Maddala, G. S., & Wu, S. (1999)) which assume interindividual independence and second generation tests (Bai, J., & Ng, S. (2001); Moon, H. R., & Perron, P. (2004)). The question is quite simply whether we allow the presence of possible correlations between the residuals of the different individuals in the panel.

The individual interdependence hypothesis is verified by an individual dependence test. For this, we use the dependence test proposed by (Mark, N. C., & Sul, D., 2003) in order to choose the appropriate unit root tests to test the presence of stationarity. According to this test, a probability lower than 5% rejects the null hypothesis of independence and accepts the alternative hypothesis, thus the presence of individual dependence authorizes the use of second generation tests while a higher probability accepts the hypothesis no independence thus requiring the use of first generation tests. The result of the test proposed by Breusch, T. S., & Pagan, A. R. (1980). This test looks like this:

Table 5: Dependency test result

Variable	TEST de dépendance de Breusch pagan	Chi2	P-value
	Test LM	144,939	0,006

Source: Author, from the data of Banque Mondiale (2022)

Specifically, in our study, the result of the dependence test with a p-value less than 5% as presented in the previous table validates the hypothesis of inter-individual dependence. Following this result found, it is important to use the second generation tests that we present following our work. Before using Cointegration techniques, it is necessary to verify that the variables are integrated or not of the same order. We then apply unit root tests on panel data taking into account the statistics and the p-values in level and in 1st difference in the test of (Pesaran, M. H., 2007). These tests make it possible to circumvent the restrictive hypothesis of the very first test proposed by (Levin, A., Lin, C.-F., & Chu, C.-S. J., 2002), which assumed that the autoregressive root must be the same for all the series in the alternative hypothesis.

Table 5: Unit root test

<i>Variables</i>	<i>Tests</i>	<i>Statistics</i>		<i>P-value</i>		<i>Integration order</i>
		level	First difference	Level	First difference	
<i>Growth rate of GDP per inhab</i>	CIPS	-7,142	-	0,000***	-	I(0)
	Pescadf	-2,562	-	0,005***	-	I(0)
<i>SPI</i>	CIPS	5,58	-2,49	1	0,006**	I(1)
	Pescadf	6,391	-1,608	1.000	0,054**	I(1)
<i>Tax</i>	CIPS	-2,684	-	0,004***	0,000***	I(0)
	Pescadf	-2,098		0,018**		I(0)
<i>Foreign debt</i>	CIPS	-1,376	-	0,084**	0,000***	I(0)
	Pescadf	-1,376	-	0,084**		I(0)
<i>FDI</i>	CIPS	-3,977	-	0,000***	-	I(0)
	Pescadf	-3,977	-	0,000***	-	I(0)
<i>Schooling rate</i>	CIPS	0,622	-5,173	0,733	0,000***	I(1)
	Pescadf	-0,612	-5,173	0,27	0,000***	I(1)
<i>Pop. Growth</i>	CIPS	-5,751	-	0,000***	-	I(0)
	Pescadf	-10,412	-	0,000***	-	I(0)
<i>Inflation</i>	CIPS	-7,665	-	0,000***	-	I(0)
	Pescadf	-9,376	-	0,000***	-	I(0)

Source: Author, from the data of Banque Mondiale (2022)

All in all, all variables are stationary in level except the Social Protection Index variable and the primary school enrollment rate which are stationary in first difference.

Concretely, apart from the Social Protection Index and primary schooling rate which are integrated to order 1, I (1), all the others are integrated to order 0, therefore I (0). We can then suspect a Cointegration relationship between the different variables. To ensure a long-term relationship between our variables, we carry out Cointegration tests. Some of our variables are integrated of order (1), so there is the possibility of a Cointegration relationship.

5. Interpreting the results of Cointegration tests

In this part, we will test the Cointegration relationship between the variables based on the approaches of (Pedroni, P. (2000); Westerlund, J., 2007). The results of the Cointegration tests of (Pedroni, P., 1999) are presented respectively in the tables below:

Table 6: Cointegration test results

	<i>Statistic</i>	<i>p-value</i>
<i>Modified Phillips-Perron t</i>	3,939	0,000***
<i>Phillips-Perron t</i>	-11,694	0,000***
<i>Augmented Dickey-Fuller t</i>	-9,439	0,000***

Source: Author, from the data of Banque Mondiale (2022)

As this table indicates, the statistical tests are significant at the 1% and 5% level. We therefore reject the null hypothesis according to which there is no Cointegration between the variables and confirm the

existence of a long-term relationship between them. The table below presents the results of the cointegration test of Westerlund, J. (2007).

Table 7: Westerlund test results

Test de Westerlund	Statistic	p-value
Variance ratio	-1,483	0,069**

Source: Author, from the data of Banque Mondiale (2022)

The Westerlund test statistic is significant at the 10% level. Then, we accept the hypothesis of the existence of a Cointegration relationship between the growth rate and the explanatory variables of the model. Since the results of the econometric tests confirm the existence of a long-term relationship between the variables, several estimators can be used, in particular the MG, PMG, FMOLS or DOLS estimator. The MG and PMG estimators were not retained on the pretext that the objective was in no way to evaluate the short and long term relationship between social protection and economic growth. Furthermore, the DOLS estimator presents more robust statistical properties in the case where the temporal dimension is relatively large in the panel.

The estimation results can be interpreted. More precisely, it will be a question of firstly making an econometric interpretation of the results and secondly an economic interpretation.

6. Presentation of results and econometric interpretation

It will be a question here of interpreting the results of the causal analysis to determine the direction of the relationship between social protection and growth before interpreting the results with the control variables.

6.1 Causality analysis

The table below shows the results of the causality between social protection and economic growth.

Table 8: Granger causality test results

Null Hypotheses	Obs	F-Statistic	Prob
IPSNOM does not Granger Cause CROISS_PIBHT	270	4,02655	0,0189
CROISS_PIBHT does not Granger Cause IPSNORM		0,15395	0,8574

Source: Author, from the data of Banque Mondiale (2022)

The direction of the relationship between social protection and economic growth is not bidirectional but rather unidirectional.

Concretely, growth has no real effect on social protection, but rather it is social protection that really explains economic growth in ECOWAS countries. This result could be explained by the theory of endogenous growth according to which social spending promotes economic growth. Knowing the link between social protection and growth, it would subsequently be a question of evaluating the robustness of this relationship by a long-term estimation with a DOLS estimator.

6.2 Presentation of the results of the DOLS estimator

The table below presents the results of the DOLS estimates.

Table 9: DOLS model estimation results

	<i>Coef.</i>	<i>Std. Err.</i>	<i>P> z </i>
<i>SPI</i>	0,065**	0,033	0,049
<i>Tax</i>	-0,349	0,222	0,115
<i>Foreign debt</i>	-0,036***	0,006	0,000
<i>FDI</i>	0,173***	0,032	0,000
<i>Schooling rate</i>	0,020	0,034	0,556
<i>Pop. Growth</i>	-1,321**	0,713	0,064
<i>Inflation</i>	0,012	0,021	0,578

Source: Author, from the data of Banque Mondiale (2022)

The results in the table above reveal that social protection has a positive and statistically significant effect on the rate of economic growth per capita at the 5% threshold. Likewise, FDI has a positive and statistically significant effect on the per capita growth rate at the 1% threshold. On the other hand, external debt and population growth have a negative and statistically significant effect on per capita income at the threshold of 1% and 10% respectively.

7. Interpretation of results

It is a question here of making an economic interpretation of the coefficients which are statistically significant.

7.1 Effect of social protection on the per capita growth rate

The results reveal that social protection increases the rate of economic growth per capita. As mentioned in advance, this result could be explained by the theory of endogenous growth according to which social spending promotes economic growth (Barro, R. J., 1990). Social protection plays a vital role in this movement and many countries are working to deploy tools such as social safety net programs to make the most of their human capital. Social safety nets provide additional income to families in difficulty, also facilitate access to information and services, improve productivity, protect the elderly and support people looking for work (Banque Mondiale, 2018). Thus, social protection promotes the development of the human capital of populations, that is to say the knowledge, skills and health conditions that individuals accumulate and which allow them to fully realize their potential by becoming productive members of society. . The analysis shows that social transfers make a strong contribution to the fight against poverty and improve household productivity.

7.2 Effect of foreign debt on the per capita growth rate

The negative impact of foreign debt on economic growth is supported by Keynesians. For these economists, financing the economy through debt makes it possible to achieve macroeconomic balance and avoid economic fluctuations. Neoclassical analysis differs from that of the Keynesians. Thus, our results estimate that foreign debt has a negative effect on economic growth. Indeed, the use of debt plays an essential role for development, but can also weaken growth and penalize the poor. Provided it is well managed, transparent and used as part of a credible growth policy, debt can be a lever.

Moreover, high public debt can curb private investment, increase budgetary pressure, reduce social spending and limit the government's capacity to implement reforms (Banque Mondiale, 2022). This analysis

is supported by the work of (Kinda, T., & Zahonogo, P., 2021), who finds that the increase in debt negatively impacts economic growth in both rich and poor countries in natural resources. However, countries poor in natural resources are more impacted than rich countries. This result can be explained by the quality of institutions in ECOWAS countries. Weak institutional quality with its corollary of corruption recorded in these countries can reduce economic growth and the standard of living of the populations.

7.3 Effect of foreign direct investment on per capita growth rate

FDI increases economic growth and therefore the living conditions of the populations of ECOWAS countries. The importance of FDI in growth is supported by neoclassicals in classical growth theory. Thus, according to the Solow model, foreign direct investments, resulting in an inflow of capital, contribute positively to the economic growth of host countries in the same direction as the reduction in the unemployment rate and tax revenues. Based on the fundamental assumption of diminishing returns, FDI tends to have much more significant returns in countries characterized by a lower per capita capital stock (in poor people). Consequently, FDI contributes to high economic growth rates and thus makes it possible to improve the living conditions of populations and facilitate the convergence of these economies towards rich countries LO, S. B. (2020).

7.4 Effect of population growth on per capita growth rate

The demographic explosion in developing countries has given rise to Malthusian theory (Malthus, T. R., 1798; Boserup, E., 1965) and still gives rise today to political decision-makers and researchers, a lot of concern about its implication on economic growth. By definition, population growth is generally considered to be an increase over a period of time in the number of individuals in a country or economy. The results estimate that population growth reduces economic growth and well-being in ECOWAS countries. Despite health policies, especially the increase in public health spending evident in ECOWAS countries, on average the size of their population still remains low, compared to those of countries such as China, India, Brazil. In addition to this weakness in human resources, maternal and infant and child mortality rates are quite high in this area. In addition, unemployment rates remain very high in almost all ECOWAS countries. All these elements weaken human capital, a factor of economic growth. This result is consistent with the work carried out by (Ekodo, I., 2018) who finds a negative effect of population growth on the growth of GDP per capita.

8. Conclusion

The objective of this paper was to analyze the link between social protection and economic growth in the ECOWAS zone. It has been applied mainly in ECOWAS countries where mortality rates still remain a concern and this in correlation with the low level of social protection despite the numerous social protection policies and systems highlighted to improve the living conditions of most vulnerable populations. This concern is part of the Sustainable Development Goals (SDGs) aimed at improving the living conditions of vulnerable populations. To achieve the general objective, the econometric approaches used include causality analysis based on Granger causality and the DOLS estimation technique. The first technique makes it possible to analyze the nature of the relationship between social protection and economic growth. As for the second estimation technique based on the DOLS estimation, it served as robustness, thus evaluating the long-term dynamics between social protection and growth. The following results emerge from our estimates.

On the one hand, the results of the causality test show that there is a unidirectional relationship between social protection and economic growth in ECOWAS countries. Indeed, social protection significantly improves economic growth.

On the other hand, the robustness tested using the DOLS estimator shows that social protection positively affects economic growth through per capita income in the ECOWAS zone. Regarding the control variables, we find that external debt and population growth have a negative effect on the standard of living of populations and on economic growth in general. On the other hand, FDI contributes to economic growth and household well-being in a specific way.

Given the results found in this study, the implications for economic and social policies would be to emphasize social protection which could improve human capital capable of guaranteeing sustainable development. Practically given these results, we suggest expanding social protection in Africa to strengthen human capital, protecting human capital by improving social protection programs and implementing so-called “adaptive social protection” programs. »

However, in ECOWAS countries, financing social protection is a major challenge due to economic, institutional and social constraints specific to the region. To achieve this, governments must deploy digital governance systems to reduce the risk of corruption in the management of public funds. They must also put in place independent control mechanisms and punish those responsible for embezzlement. Noting that a large proportion of economic activity in ECOWAS is informal, it would be advantageous to increase countries' tax base by encouraging workers and businesses to formalize (through awareness-raising campaigns, administrative simplifications and tax incentives). Also, modernizing tax administrations using digital tools to reduce tax evasion and avoidance through the use of electronic invoicing systems to help better track transactions. Involve the private sector in financing social projects, particularly in the areas of health, education and social protection.

Furthermore, the implementation of these recommendations with a view to financing and strengthening social protection in ECOWAS countries must take into account the specific economic, social and institutional characteristics of each country. In ECOWAS countries with a large informal economy (Niger, Benin), it is important to set up awareness-raising campaigns to encourage the formalization of small businesses and self-employed workers. It is also important to simplify administrative procedures and offer tax incentives to facilitate this transition. In countries rich in natural resources (Nigeria, Côte d'Ivoire), it is important to impose specific taxes on extractive industries (oil, gas, mining) and ensure that these revenues are allocated to social programs. Increasing transparency in the management of revenues from natural resources.

Given the rise in job insecurity and vulnerability in the ECOWAS zone, the implementation of social protection systems requires strong growth in terms of promoting employment and increasing social contributions. As a result, they are an important element in the implementation of growth and poverty reduction strategies, which remain at the heart of economic and social policy in West Africa.

Well-targeted social protection programs (such as cash transfers or social safety nets) directly reduce poverty and inequality. This improves social cohesion and reduces political tensions, creating a more stable environment for governance.

Finally, by protecting vulnerable populations and improving their access to health and education, social protection strengthens human capital, because a better health and better educated workforce is more productive, which stimulates economic growth. Investing in social protection also enables governments to make progress towards achieving the SDGs, including poverty eradication (SDG 1), health and well-being (SDG 3) and quality education (SDG 4). It also enhances countries' international reputation.

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