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The Role of Public Expenditure on Sports in Economic Growth: Evidence from Burkina Faso.

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ABSTRACT

This paper analyzes the impact of the components of public spending on sports economic growth in Burkina Faso. The autoregressive distributed lag model analysis approach was used to analyze the impact of these expenditures on economic growth in Burkina Faso from 1988-2019. Bounds test results suggest that the variables are related in the long run.

The results confirm that the sports budget has a positive and significant effect on short- and long-term economic growth up to the 5% threshold in Burkina Faso. Sports investment expenditure has a positive and significant impact on economic growth in the short and long term up to the 1% and 5% levels, respectively. In the long term, this expenditure has a negative and insignificant effect on economic growth. Sports subsidies also have a positive and insignificant effect on economic growth in the short and long terms.

Keywords: Sport, public expenditure, economic growth, ARDL, Burkina Faso

1. INTRODUCTION

Since independence, the quest for development has been a major concern of Sub-Saharan African countries. In this context, these countries adopted structural adjustment reforms in the mid-1980s with the help of donors. However, these policy reforms, initiated under the Structural Adjustment Programme (PAS), have not led to significant progress in economic growth or a reduction of poverty. The inadequacy of the results of the implementation of these policies requires the use of other development strategies.

Faced with the many challenges to be met, the Stade occupies a fundamental role. Consequently, the intervention of the state has become a necessity in the need to support activity via expansionary policies in a state of crisis and the importance of fiscal rebalancing to achieve long-term objectives (Dione, 2016). Many researchers have studied the effects of public spending on economic growth and have provided controversial results. Indeed, Makuyana and Odhiambo (2017), Mukhtarov and al. (2019) and Echaoui and Skikra (2021) show that public investment spending has a positive and significant effect on output growth but generates a significant crowding-out effect on private investment spending.

The results of Lupu et al. (2018) and Balaev (2019) confirm that productive spending on education and health has a positive effect on growth, while unproductive spending on general public services and social policy has a negative effect on growth. Public spending plays a crucial role in economic recovery by promoting job creation and improving living conditions (Acacha-Acakpo and Houeho, 2020). Similarly, Iwegbunam and Zurika (2019) report that in South Africa, expenditures on private consumption have a significant negative effect on economic growth. In reference to sport, Ayekoe (2010) concludes that in the short and long terms, public spending had no overall impact on economic activity in Côte d'Ivoire from 1990-2010. In Cameroon, a 1% increase in public spending on Physical and Sports Activities (PSA) boosts economic growth by 0.01% in the short term and 0.037% in the long term (Guelang and Abessolo, 2022). Likewise, Oghenebrorien (2016) finds that public spending on sports has a negative impact on economic growth. Vugar et al. (2023) argue that a 1% increase in general public expenditure on recreation and sports has the most significant impact in the Czech Republic (2.37%) and Slovakia (2.44%), and the least in Australia (0.4%).

The work of Aiginger and Falk (2005) reveals that public spending on subsidies has, at best and in some cases, no effect on economic growth and that the expansion of the state with the granting of subsidies has a negative effect. Nathalie and Valentin (2006) argue that subsidies

also have the disadvantage of penalizing performance. However, the results of Belleau-Arsenault (2017) show that government financial aid has a positive effect on the employment of institutions, but this effect is not significant for their survival.

As part of the implementation of government policy on sport, states allocate financial resources to the department in charge of sport. This public expenditure can have a significant countercyclical influence on the fundamental variables of economies, notably on consumption and investment (Dia, 2008). In Burkina Faso, the domain of sports has always been of great concern for the government to the point at which directives and public sports policies, with plans of implementation, have been established. These different orientations are recorded in documents such as the National Sports Policy of for 2007-2013 and the National Sports and Leisure Policy for 2016-2020.

As an essential actor involved in the organization, financing and regulation of sports activities, the Burkinabe State devotes enormous efforts each year to the allocation of financial resources to the domain of sports. An analysis of finance laws indicates that this budgetary allocation has shown an upward trend, increasing from 8 million CFA francs in 1988 to 13.57 billion CFA francs in 2019 for a GDP of around 1,918 billion CFA francs. The breakup of this budget by type of expenditure shows that current expenditure represents 62.56% while that of sports investment represents 37.44%. The subsidy granted to the sports movement represents, on average, 81.01% of the current expenditure.

The data indicate that the state allocates significant financial resources to the domain of sports at the expense of priority sectors such as health, education, agriculture and security. However, no research has been done to assess the impact of sports on the country's economic growth. Therefore, there is a need to determine the impact of public spending on sports on economic growth. The objective of the current research is to highlight the effects of the components of public spending on sports on economic growth in Burkina Faso from 1988-2019. More specifically, this work assesses the impact of current public expenditure on sports, public expenditure on subsidies for sports structures and public expenditure on sports investment in economic growth.

The study is organized into three sections. The first section addresses the impact of public spending on sports on economic growth. The second section focuses on modeling the impact of public spending on sports on economic growth, and the third section highlights the empirical evidence of the impact of public spending on sports on economic growth in Burkina Faso.

2. Impact of public spending on sport on economic growth: a mixed relationship

Numerous empirical studies highlight the role of public spending in economic growth. The work of Kesenne and Task (2000) concludes that government intervention concentrated on financing the construction and maintenance of a variety of sports facilities to promote sport for all has kept Flanders' economic dynamism alive. The state's intervention through market regulation mechanisms lowers the price threshold for low-income families. Baade and Dye (1990), through a study of nine (9) cities in the United States from 1965 and 1983, indicate that the presence of a football stadium has a positive and significant impact on the economic activity of a single city.

The results of Elotmani and Bensbahou (2021) reveal the existence of a long-run relationship between public spending on sports and real gross domestic product in Morocco over the period of 1990-2017. Indeed, general operating and investment expenditures on sports have a significant long-term effect on real gross domestic product. In the short term, these expenditures have no relevant effect on Moroccan real gross domestic product. The work of SpEA (2018), using satellite accounts on 2012 data, indicates that the share of gross domestic product related to sport in the European Union is 2.12%, or 279.7 billion euros. Berwert and al. (2007) note that the Swiss sports economy as a whole had an estimated global turnover of CHF 15,100 million in 2005, contributing 1.8% to GDP and 2.5% to employment. In 2004, sport generated an added value of 407 billion euros, i.e., 3.7% of GDP in Europe. Therefore, it can be used as a tool for the economic development of a country.

In a book authored by Blais-Morisset et al. (2017), public investment in sport is shown to be a more targeted public policy instrument to achieve a nation's success in the Olympic Games. Coates (2015) points out that development through sport is unlikely to create more wealth for a community.

Coates and Humphreys (2008) show that sports subsidies cannot be justified on grounds of local economic development, increased income or job creation on the one hand and economists who generally oppose sports subsidies on the other. However, Wolla (2017) argues that subsidizing stadium construction has an impact on local economies. The findings of Alghumgham (2017) on financial support for sports projects also reveal that projects that have benefited from public subsidies have enhanced economic growth.

In general, there is no agreement on the impact of fiscal spending on economic growth. For traditional Keynesians (Keynes, 1936; Clower, 1965; Leijonhufvud, 1968) and neo-Keynesians

(Romer, 1993; Greenwald and Stiglitz, 1992), budgetary policy remains the main tool for government intervention to guide economic activity and achieve certain predetermined objectives. Fiscal spending can be used to enhance economic activity as well as to reduce unemployment.

Monetarists (Friedman, 1968; Phelps, 1967) and theorists of rational anticipation (Muth, 1962; Lucas and Sargent, 1974 and 1980; Kydland and Prescott, 1977) emphasize the perverse effects of fiscal spending. They argue that public spending can produce crowding-out effects or no effect on economic activity. Endogenous growth theorists Romer (1986; 1990), Barro and Sala-I-Martin (1990) and Lucas (1988) claim that public investment spending on education, health, research and infrastructure stimulates economic growth.

Empirically, Chu et al. (2020) indicate that a shift in public spending toward productive public spending at the expense of nonproductive spending has a positive relationship with economic growth. The discoveries of Bosede and et al. (2013), Uma and et al. (2014) and Taher (2019) show that capital stock and transport investment have positive and relevant effects on economic growth. In contrast, Bendoma and Essomba (2017) show that public investment has a negative and relevant impact on economic growth in Cameroon. Lupu and et al. (2018) and Gupta (2018) hold that capital expenditure has a positive impact on the economy, while operating expenditure has a negative impact.

3. Modelling the impact of sports spending on economic growth

The analytical model used is the autoregressive distributed lag (ARDL) model. This method makes it possible to model the long- and short-term dynamics of variables. Indeed, as some variables are stationary and others have a unit root, the ARDL approach is generally suggested to estimate the dynamic equation. The ARDL model proposed by Peseran et al. (2001) permits, on the one hand, testing long-term relationships by using bounds tests on series that are not integrated in the same order. On the other hand, better estimates are obtained for small samples (Narayan and Smyth, 2005). Thus, the ARDL model provides the opportunity to deal with long time dynamics and short time adjustments simultaneously. The basic equation is of the following form:

$$\Delta y_t = a_0 + \sum_{i=1}^{p} a_1 \Delta y_{t-1} + \sum_{i=0}^{q} a_{2i} \Delta x_{t-1} + b_1 y_{t-1} + b_2 x_{t-1} + e_t \quad (1)$$

where y is the variable to be explained, x is the vector of explanatory variables, Δ is the first difference operator, a_0 is a constant, $a_{1i} \ldots . a_{2i}$ is the short-term effect, $b_1 \ldots . b_2$ denotes the long-term dynamics of the model, and $e \square iid(0,\sigma)$ is the error term (white noise).

The first step is to test the existence of a long-term relationship by applying the "bounds tests" approach, followed by an estimation by the ordinary least squares (OLS) method of the error correction models. Finally, the last step involves estimating the long-term relationship and short-term dynamics of the ARDL models by OLS. The ARDL approach is used because this procedure is considered by many economists to be a new and relatively simple approach Peseran et al. (2001).

The analytical framework of the article is based on the work on endogenous growth theory, which highlights the impact of public expenditure on economic growth (Romer, 1986; Lucas, 1988; Mankiw and Weil, 1992; Barro, 1990; Barro and Sala-I-Martin, 1996). Thus, to assess the impact of public spending on sports on economic growth in Burkina Faso, the Coob-Douglass production model was used:

$$Y(t) = A(t)K(t)L(t)Z(t) \quad (2)$$

t stands for time, Y is output, K is capital stock, L is labor, A is technological progress and Z denotes other control variables.

If we choose to capture the short- and long-term effects of the above explanatory variables on economic growth, the ARDL representation of the function takes the following form:

$$y_t = a_0 + \sum_{i=1}^{p} a_1 \Delta y_{t-1} + \sum_{i=0}^{q} a_{2i} \Delta k_{t-1} + \sum_{i=0}^{q} a_{3i} \Delta\, l_{t-1} + \sum_{i=0}^{q} a_{3i} \Delta z_{t-1} + b_1 k_{t-1} + b_2 l_{t-1} + b_3 z_{t-1} + e_t \quad (3)$$

Three (03) specifications of the econometric model are chosen to test the impact of public spending on sports on economic growth with the inclusion of sociopolitical control variables. The first specification assesses the impact of the sports budget on economic growth, and the second assesses the impact of current sport expenditure and investment on economic growth. The third assesses the impact of subsidies to sports structures on economic growth. Based on the economic literature, the model variables are summarized in Table 1.

Table 1: Model variables

Endogenous variable	Measure	Expected sign
Real gross domestic product	Measure of domestic production	+
Exogenous variables		
Sport budget	Allocation of resources to the sport sector	+
Current expenditures	Allocation of resources to operations	-/+
Public investment in sport	Allocation of resources to investments	+
Sport subsidies	Allocation of resources to sport structures	+
Control variables		
Financial development	Economic development	+-
Primary school enrollment rate	Human capital	+
Population growth rate	Population growth in a given period	+/-

Source: Authors' estimates

4. Data collection method and descriptive analysis

The data used in this work cover the period of 1988-2019. The data were collected from the General Directorate of the Budget of the Ministry of Economy, Finance and Development. Data on subsidies for the sports movement were collected from the National Fund for the Promotion of Sport and Leisure and Financial Administration Directorate of the Ministry of Sport and Leisure.

Data on the population growth rate, primary school enrollment and financial development were collected from the World Development Indicators (WDI) of the "Perspective Monde" database of the University of Sherbrooke, Canada and from the National Institute of Statistics and Demography.

Table 2 shows that the average budgets for all variables of interest show an upward trend over the period of 1988 to 2019. The structure of public expenditure on sport indicates that the average current expenditure (FCFA 2 201 533 000) is greater than that of investments (FCFA 1 051 311000). Subsidies to sports structures show an average trend between the three periods. Subsidies increased from 175 060 000 CFA F from 1988 to 1995 to 5 929 832 000 CFA F between 2012 and 2019, i.e., an average of CFAF 1 783 457 000. This can be explained on the one hand by the growth of sports associations, which is in close line with the various directives

and sporting references adopted since independence until 2019, and on the other hand, by the importance of sporting activities at the national and international levels.

Capital expenditure shows strong average allocations of CFAF 1 051 311 000 between 1988 and 2019. This increase is explained by the commitment of state authorities to meet the infrastructure needs of the population.

Table 2: Evolution of the averages of the variables of interest for the four periods

Years	1988-1995	1996-2003	2004-2011	2012-2019	Overall average
Actual gross revenue	179 086 807	324 298 938	721 090 048	1 612 343 760	709 204 888
Sport budget	940 112	1 963 677	1 952 485	9 219 810	3 519 021
Current expenditure on sport	880 262	1 574 554	1 604 164	4 747 152	2 201 533
Public investment in sport	92 059	1 449 623	643 615	2 019 946	1 051 311
Expenditure on sport subsidies	175 060	377 765	651 171	5 929 832	1 783 457

Source: Authors' estimates

5. Empirical evidence of the impact of public spending on sport on economic growth

The results of the augmented Dickey-Fuller (ADF) and Phillips-Perron (PP) tests are presented in Table 3. It emerges from the analysis of the results that all the series are not stationary at the 1%, 5% and 10% levels. Out of the eight (08) variables of the study, only two (sports subsidy, primary school enrollment rate) were found to be stationary at level I (0) for the two (02) tests (ADF and PP), and the other six were stationary in first difference at the end of the two tests at the 1%, 5% and 10% thresholds. These results lead to a rejection of the stationarity hypothesis for all the series. This leads to our use of the Autoregressive Distributed Lag (ARDL) approach of Persaran et al. (2001) given its interest and its overcoming of the requirements of the Engle and Granger (1987) and Johansen (1988, 1991) test for the same integration order.

T able 3: **Results of the augmented Dickey-Fuller and Phillips-Perron stationarity tests**

Logarithmic variables	**Augmented Dickey-Fuller**	**Phillips-Perron**	**Order of integration**
D (Real gross domestic product)	-2.67* (-2.62)	-4.84*** (-4,28)	I(1)
D (Sport budget)	-5.46 *** (-3.67)	-5.45*** (-3.67)	I(1)
D (Current expenditure on sport)	-5.60 *** (-3.67)	-5.65 *** (-3.67)	I(1)
D (Sports investments)	-2.84 * (-2.62)	-9.16 *** (-3.67)	I(1)
D (Sport subsidy)	-3.13** (-2.96)	-3.10** (-2,96)	I(0)
D (Population growth rate)	-2.76** (-2.62)	-4.61*** (-3.6)	I(1)
D (Financial development)	-2.91* (-2.63)	-4.74*** (-3.67)	I(I)
D (Primary school enrollment rate)	-7.10*** (-4.28)	-4.61*** (-3.66)	I(0)

Source: Authors' estimates
*** Significant at the 1% level; ** Significant at the 5% level; * Significant at the 10% level

The selection of the optimal ARDL models (Table 4) was based on the Akaike information criterion, which offers statistically significant results with fewer parameters. The estimation results indicate that the optimal model retained from Eviews 10 is a matrix (2 2 2 2 2) for all three models: ARDL (2 2 2 2 2).

Table 4: Determination of optimal ARDL models

Lag	LogL	LR	FPE	AIC	SC	HQ
0	1.03	NA	3.51e-09	0.40	0.72	0.50
1	166.00	241.96	1.69e-12	-7.33	-4.72	-6.50
2	272.80	106.80*	6.52e-14*	-11.19*	-6.28*	-9.62*

Source: Author's estimates based on public sports expenditure data
*** Significant at the 1% level; ** Significant at the 5% level; * Significant at the 10% level

5.1. The robustness of the econometric estimates of the models

The results of the validity tests and the estimation of the staggered lag autoregressive models (ARDL) by least squares are as follows:

5.1.1. The overall specification of the models

Diagnostic tests were carried out to assess the forcefulness of the selected models. The synthesis of the results of the significance test of the model variables and of the cointegration test of the equations is summarized in Table 5.

Brusch Godfrey carried out a test whose results show that the residuals of all three models are not autocorrelated with a probability of 0.99>0.05 for Model 1, a probability of 0.91>0.05 for Model 2 and a probability of 0.38>0.05 for Model 3. Similarly, the residuals are Breusch–Pagan-Godfrey heteroskedastic, as evidenced by the results for Models 1, 2 and 3, with probabilities of 0.98>0.05, 1>.05 and 0.86>0.05, respectively.

Regarding the Ramsey specification, no functional form problems were detected (proba=0.52>0.05 for Model 1, proba=0.35>0.05 for Model 2 and proba=.0.21>0.05 for Model 3).

Finally, the probabilities of the Jarque-Berra test show that the residuals are normally distributed in the 3 models (proba=0.86>0.05 for Model 1, proba=0.77>0.05 for Model 2 and proba=0.60>0.05 for Model 3).

Table 5: Stability tests of the ARDL models

Models	Test hypothesis	**Test**	**F-statistic**	**Probability**
Model 1	Specification	Ramsey (RESET)	24.75	0.52
	Autocorrelation	Breusch-Godfrey	4.17	0.99
	Heteroscedasticity	Breusch-Pagan-Godfrey	4.17	0.98
	Normality	Jarque-Berra	0.29	0.86
Model 2	Specification	Ramsey (RESET)	13.69	0.35
	Autocorrelation	Breusch-Godfrey	0.013	0.91
	Heteroscedasticity	Breusch-Pagan-Godfrey	3.15	0.89
	Normality	Jarque-Berra	0.52	0.77
Model 3	Specification	Ramsey (RESET)	26.69	0.21
	Autocorrelation	Breusch-Godfrey	0.83	0.38
	Heteroscedasticity	Breusch-Pagan-Godfrey	6.93	0.86
	Normality	Jarque-Berra	1.02	0.60

Source: Author from Eviews 10

*** Significant at the 1% level; ** Significant at the 5% level; * Significant at the 10% level

The graphical CUSUM square test of the three (03) models gives way to accept or reject the hypothesis of the stability of the regression. The curves do not leave the corridor, which confirms the stability of the models.

5.1.2. The study of cointegration: optimal ARDL and bounds test

The results reported in Bounds test Table N°6 show that the Fischer statistics (F-statistic) of the three models are higher than the different upper bounds of the critical value intervals corresponding to the 1% error level. This makes it possible to reject the hypothesis that there is no long-term relationship. There is therefore a long-term cointegrating relationship for each of the three (03) estimated models. The results of the most parsimonious ARDL models (2 2 2 2 2) corresponding to the number of lags that minimize the Akaike criterion are summarized in Table 6.

Table 6: Summary of the ARDL bounds test results for the three (03) models

	F-Bounds Test		**Null Hypothesis: No levels relationship**		
	Test Statistic	**Value**	**Signif.**	**I(0)**	**I(1)**
				Asymptotic: n=1000	
Model 1	F-statistic	5,31	10%	2.2	3.09
	k	4	5%	2.56	3.49
			2.5%	2.88	3.87
			1%	3.29	4.37
	Actual Sample Size	30		Finite Sample: n=30	
			10%	2.525	3.56
			5%	3.058	4.223
			1%	4.28	5.84
Model 2	F-statistic	7,83	10%	2.08	3
	k	5	5%	2.39	3.38
			2.5%	2.7	3.73
			1%	3.06	4.15
	Actual Sample Size	30		Finite Sample: n=30	
			10%	2.41	3.52
			5%	2.91	4.19
			1%	4.134	5.76
Model 3	F-statistic	3,61	10%	2.2	3.09
	k	4	5%	2.56	3.49
			2.5%	2.88	3.87
			1%	3.29	4.37
	Actual Sample Size	30		Finite Sample: n=30	
			10%	2.525	3.56
			5%	3.058	4.22
			1%	4.28	5.84

Source: Author from Eviews 10.
*** Significant at the 1% level; ** Significant at the 5% level; * Significant at the 10% level

5.1.3. Estimation of short-term relationships

For Model 1 ARDL (2 2 2 2), the results in Table 7 show that the coefficient of the error term of the estimated cointegration equation is negative and statistically significant to the 1% level, revealing the existence of an error correction mechanism and therefore a long-run relationship between the variables. These results show that economic growth in Burkina Faso has an automatic mechanism that reacts to deviations from equilibrium in a balanced manner. The

coefficient value of 0.66 shows that 66% of the deviation of the previous year is adjusted for the current year, i.e., 66% of the previous year's shock converges to the current year's long-run equilibrium.

For the 2 ARDL model (2 2 2 2 2), the results in Table 7 show that the coefficient of the error term of the estimated cointegration equation is negative and statistically significant to the 1% level, which reveals the existence of an error correction mechanism and therefore a long-run relationship between the variables. These results show that economic growth in Burkina Faso has an automatic mechanism that reacts to deviations from equilibrium in a balanced manner. The coefficient value of 0.93 shows that 93% of the deviation of the previous year is adjusted for the current year. That is, 93% of the previous year's shock converges to the current year's long-run equilibrium.

Finally, the results of Model 3 ARDL (2 2 2 2 2), recorded in Table 7, show that the adjustment coefficients of the model are negative and statistically significant at the 1% level, which reveals the existence of an error correction mechanism and consequently a long-term relationship between the variables. The value of the coefficient 0.47 indicates a misalignment mechanism of 47% of real GDP from its equilibrium. This means that 47% of the previous year's shock converges to the current year's long-term equilibrium.

Table 7*:* Summary of estimation results for short-term ARDL models

	Model 1	Model 2	Model 3
Logarithm variable	Coefficient	Coefficient	Coefficient
Constant	-1.01	4.39	0.82
D. Real gross domestic product (-1)	-0.111	0.022	-0.19
D. Sport budget	0.24**		
D. Sport budget (-1)	-0.14		
D. Current expenditure on sport		0.14	
D. Current expenditure on sport (-1)		60.005	
D. Sport investment expenditure		0.06	
D. Sport investment expenditure (-1)		-0.06***	
D. Sport subsidies			0.08
D. Sport subsidies (-1)			-0.03
D. Primary school enrollment rate (-1)	-0.31***	-0.41***	-0.28***
D. Financial development (-1)	0.38**	0.59***	0.40**
D. Population growth rate (-1)	-24.80	-1.64	-21.85
Cointegration equation (-1)*	-0.66***	-0.93***	-0.47***

Source: Author from Eviews 10
*** Significant at the 1% level; ** Significant at the 5% level; * Significant at the 10% level

5.1.4. Estimation of long-term relationships

Based on the findings of numerous empirical results, a significant negative effect of public spending on sport on economic growth was expected. However, the results of the 1 ARDL model (2 2 2 2 2) reported in Table 8 of the long-term dynamics show that the sports budget has a positive and significant effect at the 5% threshold on economic growth in Burkina Faso. An increase of one percentage point in the sports budget and in the growth rate leads to an increase of 0.36 percentage points at the 5% threshold.

The results from Table 8 of the long-run dynamics of the 2 ARDL model (2 2 2 2 2) show that sports investment expenditure has a positive and significant impact to the 1% threshold on economic growth in Burkina Faso. A one percentage point increase in sports investment expenditure leads to a 0.18 percentage point increase at the 1% level. Current expenditure on sports was found to be positive but not relevant over the long term. Current expenditure on sport was positive and insignificant at the 1%, 5% and 10% levels.

For the ARDL 3 model (2 2 2 2), the long-run dynamics of the impact of sports subsidies on economic growth reveal that all coefficients are positive but irrelevant to the 1%, 5% and 10% thresholds.

Table 8: Summary of the estimation results of the long-term ARDL models

Logarithmic variable	Model 1 Coefficient	Model 2 Coefficient	Model 3 Coefficient
Sport budget	0.36**		
Current expenditure on sport		-0.02	
Sport capital expenditure		0.18***	
Sport subsidies			0.23
Primary school enrolment rate	0.34	0.88***	0.43
Financial development	0.233	-0.06	0.065
Population growth rate	7.70**	0.53	4.93
Constant	-1.53	4.72	1.73

Source: from the author based on Eviews 10 estimates
*** Significant at the 1% level; ** Significant at the 5% level; * Significant at the 10% level

EC1 = LPBR - (0.36*LBSPORT + 0.34*LTINSP + 0.23*LDEF +7.7*LTPOP -1.53)
EC2 = LPBR - (-0.02*LDCSPORT + 01.8*LDPISPORT + 0.88*LTINSP -0.06*LDEF + 0.53*LTPOP + 4.72)

EC3 = LPBR - (0.23*LSUBSPORT + 0.43*LTINSP + 0.065*LDEF +4.93*LTPOP + 1.73).

6. Discussion of the research results

The results for short- and long-term dynamics show that the current values of the sports budget and the present current values have a positive and significant impact at the 5% threshold on economic growth. A one percentage point increase in the sports budget appreciated as 0.24 and

0.36 percentage points of economic growth in Burkina Faso. These results seem consistent with those of the Carrefour Competences Africans in 2020 on the contributory share of sport to the national economy in Burkina Faso, according to which the value added generated by the sports and leisure sector at around 49 million FCFA in 2018 and 2019. In terms of added value in relation to GDP, contributory shares are estimated at 0.55% during this period.

These results are consistent with those of Maingi (2017), who finds that public spending on health has a positive effect on economic growth in Kenya from 1963-2008. Tahtah (2013) shows that all public spending causes economic growth in Morocco and that Wagner's law does not hold. Similarly, the results of Fatás and Mihov (2001) reveal that a fiscal stimulus has a significant and permanent impact on private output and employment using US quarterly data for 1969-1996. Dione (2016) shows that government spending is positively related to economic activity on the aggregate panel. It is positively related to activity in low- and middle-income countries and negatively correlated in high-income countries. However, theoretical and empirical evidence suggests that public spending does not contribute to economic growth. Such public spending is recognized in the literature as unproductive spending. Ayekoe (2010) argues that in Côte d'Ivoire, public spending on sports has no overall impact on economic activity as expressed by real GDP in the short term. This appears as a consequence or an endogenous factor of the growth process. Carla (2014) claims that there is a strong negative correlation between government spending and economic growth in Cape Verde.

In the short term, current expenditure on sports has a positive effect, and in the long term, it has a negative and irrelevant effect on economic growth in Burkina Faso at the 1%, 5% and 10% thresholds. This situation is elucidated by the unproductive nature of current or operating expenditures. Along with this, Jeff-Anyeneh and Ibenta (2019) report that Nigeria's economic growth is independent of and unaffected by current government expenditures using data covering the period of 1981-2016. Bassanini and Scarpetta (2001) and Blanchard and Perotti (2002) provide evidence that the effect of consumer spending on activity is indeterminate.

The short- and long-term results show that subsidies to sports associations also have a positive and irrelevant effect on economic growth at the 1%, 5% and 10% levels in Burkina Faso. Coates and Humphreys (2008) conclude that sport subsidies cannot be justified on grounds of local economic development, increased income or job creation on the one hand and economists who generally oppose sport subsidies on the other hand. Aiginger and Falk (2005) argue that public spending on subsidies has no effect on economic growth. Nathalie and Valentin (2006) note

that subsidies in the form of direct transfers, loans or loan guarantees also have the disadvantage of penalizing economic performance.

The short-term dynamics found reveal that past sports investment spending has a relevant negative effect on economic growth in Burkina Faso. A one percentage point increase in this expenditure results in a depreciation of real GDP by 0.06 percentage points to the 1% threshold. However, in the long term, such an increase has a positive and relevant effect on economic growth to the 5% threshold. Indeed, a percentage point increase in these expenditures generates a 0.18 percentage point increase in real GDP in Burkina Faso. These results corroborate those of Kesenne and Task (2000), who hold that government intervention in financing the construction and maintenance of a variety of sports facilities to promote sport for all has kept Flanders' economic dynamism alive. The work of Lupu et al. (2018) supports Gupta's (2018) finding that capital expenditure (education and health) has a positive impact on the economy. Boccanfuso et al. (2014) confirm the positive contribution of public capital to output with an average of over 0.09. On the other hand, some results, such as those of Bendoma and Essomba (2017) and Edem (2018), support a negative and relevant impact of public investment on economic growth.

Baade and Dye (1990) argue that the presence of a stadium has a significant and positive effect on income in a single city. The results of the impact of sports infrastructure on employment are similar to those obtained for the impact of sports infrastructure on production. Blais-Moriss et al. (2017) conclude that government spending on sports appears to be a better indicator of Olympic outcomes than a GDP variable and is a more targeted public policy instrument for achieving a nation's success in the Olympic Games.

Berwert, Rütter, Nathani and Holzhey (2007) also show that the approximately 26,000 sports facilities of the overall sports system in Switzerland play an important role beyond the practice of sport. This sector is the second most important sector in Switzerland among all sports activities, with a gross added value of one million eight hundred million (1,840,000) CHF (23%) and eighteen hundred and twenty (18,820) jobs (23%).

As far as the control variables are concerned, we note that the primary school enrolment variable (0.88%) was positive and significant at the 1% level in the long term in model 2, and positive and insignificant in models 1 and 2. These results support Becker's (1960) assertion that better-educated people will be more productive in their future working lives. In this respect, as sport

is a field of education, the know-how received will enable future athletes to pursue their sporting careers effectively.

The population growth rate (7.7) is positive and significant at the 5% level in the long term. These results corroborate the view of orthodox economists that population growth positively affects economic growth (Chan et al., 2005, Thuku et al., 2013 and Dao, 2012). When the population grows as a result of improved living conditions, at some point the working-age fraction becomes higher, savings and investment increase, and so does economic growth. However, advocates of the heterodox thesis, like Maltus (1798) and pro-Malthusians (Hossain and Chowdhury, 2009 and Sija, 2013), stipulate that population growth negatively affects economic growth. The variable financial development (0.38; 0.59 and 0.40) proved positive and significant at the 5% and 1% thresholds in the short term in all 3 models. This confirms the decisive role played by banks in economic growth, insofar as they promote innovation through the financial services they provide (Schumpeter, 1911). It indirectly affects economic growth through financial instability, and its short-term effect promotes growth.

7. Conclusion

The objective of this paper was to analyze the impact of public spending on sports on economic growth in Burkina Faso. This work used a Coob-Douglass-type production function that was linearized to assess the effects of public spending on sports on economic growth. Thus, variables of interest, including the sports budget, current expenditures, subsidies to sports associations and capital expenditures, as well as control variables, such as financial development, the population growth rate and the primary school enrollment rate, were explored in this research. Econometric modeling of time series data covering 1988-2019 was used. The methodology followed for the econometric estimations is based on the autoregressive distributed lag (ARDL) approach of Pesaran et al.

The results show that the sports budget has a positive and significant impact on short- and long-term economic growth to the 5% level in Burkina Faso. Sports investment expenditure has a positive and significant impact on short- and long-term economic growth at the 1% and 5% levels, respectively. Current expenditure is positive and irrelevant in the short term for economic growth. In the long term, this expenditure has a negative and insignificant effect on economic growth. Sports subsidies are also positive and insignificant in the short and long term for economic growth.

The state should adopt a policy of reallocating the components of public spending on sports to investment spending on sports. Similarly, public decision-makers should redirect subsidies to the sports movement toward sports investments and facilities. This spending has been shown in the economic literature to be more productive and to play an important role in enhancing economic growth through the multiplier effect, through which increased investment leads to a more than proportional increase in national income. The Burkinabe government could exploit public–private partnerships in the context of public investment in sports.

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