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Analysis of the effects of foreign direct investment on the energy transition in Côte d'Ivoire

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Abstract

This study examines the effect of foreign direct investment (FDI) on Côte d'Ivoire's energy transition from 1990 to 2023 using Full Modified Least Squares (FMOLS). Results show that FDI and business freedom, in the absence of strong environmental regulations, hinder the shift to renewable energies, as investors continue to favor cheaper but more polluting fossil fuels. The negative link between CO_2 emissions and the energy transition confirms the country's carbon dependence. Interestingly, corruption appears positively associated with the transition, likely reflecting donor-driven renewable projects despite weak institutions. To align FDI with decarbonization goals, Côte d'Ivoire should strengthen environmental laws, set binding carbon targets, and introduce fiscal incentives for clean energy, supported by transparent governance and institutional reforms.

Keywords: Renewable Energy, foreign direct investment, Ivory Coast, economic growth

JEL Classification: O13; N5; L6; Q57;

Analyse des effets des investissements directs étrangers sur la transition énergétique en Côte d'Ivoire

Résumé

Cette étude examine l'effet des investissements directs étrangers (IDE) sur la transition énergétique de la Côte d'Ivoire entre 1990 et 2023, en utilisant la méthode Full Modified Least Squares (FMOLS). Les résultats montrent qu'en l'absence de réglementations environnementales strictes, les IDE et la liberté des affaires freinent le passage aux énergies renouvelables, les investisseurs continuant de privilégier des énergies fossiles moins coûteuses mais plus polluantes. Le lien négatif entre les émissions de CO_2 et la transition énergétique confirme la dépendance du pays au carbone. Fait intéressant, la corruption apparaît positivement associée à la transition, ce qui reflète probablement les projets d'énergies renouvelables financés par des bailleurs internationaux malgré la faiblesse des institutions. Pour aligner les IDE avec les objectifs de décarbonation, la Côte d'Ivoire doit renforcer les lois environnementales, fixer des objectifs carbones contraignants et introduire des incitations fiscales pour les énergies propres, soutenues par une gouvernance transparente et des réformes institutionnelles.

Mots-clés : Énergies renouvelables, investissements directs étrangers, Côte d'Ivoire, croissance économique

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Introduction

In a context of accelerated globalization, energy consumption and foreign direct investment (FDI) appear as two strategic factors for economic development (P. Sadorsky, 2010: 6010–6015). However, despite the importance of energy consumption in the production process of goods and services, it remains limited. Indeed, according to the Intergovernmental Panel on Climate Change, the global energy system remains fundamentally dependent on fossil fuels, which contributes significantly to carbon dioxide (CO_2) emissions and global warming (IPCC, 2023)[1]. In 2020, fossil fuels still represented more than 83% of the global energy mix. Oil remained the most consumed energy source (31.2%), followed by coal (27.2%) and natural gas (24.7%). This heavy dependence on fossil fuels highlights the need for a transition to more sustainable energy sources (IPCC, 2023).

Furthermore, the energy transition requires the mastery of a certain technology as well as the availability of significant financial resources. Thus, the presence of foreign capital could constitute a strategic lever to stimulate energy demand, while boosting the production of goods and services P. Narayan and R. Smyth (2009: 229-236). The effect that FDI generates on energy consumption can be explained by the fact that FDI promotes the creation of industrial companies whose operation requires intense energy consumption. In addition, the sustainable development objectives advocated by supranational and national bodies are now leading to opting for energy consumption from renewable sources (IRENA, 2023). In this process, foreign capital flows and more particularly FDI appear as probable factors of energy transitions.

Thus, in the economic literature, the link between FDI and renewable energy is analyzed from different aspects. P. Sadorsky (2010: 6010–6015) indicates that in emerging economies, FDI significantly increases energy consumption through industrial development. Also, M. Shahbaz et al. (2015: 109–121) show that FDI, by providing capital and technologies, promotes energy consumption. Similarly, A. Omri and D. Kahouli (2014: 382–389) find a bidirectional causality between FDI and energy consumption.

M. Peng et al., (2024: 3) analyze the effect of FDI on the energy transition in 65 countries from 2000 to 2020. The results indicate that FDI has a significant negative effect on the transition to

[1]The IPCC (Intergovernmental Panel on Climate Change) is the United Nations body responsible for the objective assessment of scientific research on climate change. Open to all WMO and/or United Nations member states, the IPCC compiles and synthesizes the most recent scientific knowledge on climate.
https://climat.be/climatic-changes/observed-changes/IECC-reports

renewable energy, particularly due to industrial transfer and technology diffusion effects that do not promote the adoption of renewable energy. On the other hand, T. Dossou et al. (2023) show that FDI has a positive and significant effect on the development of renewable energy in 37 sub-Saharan African countries between 1996 and 2020.

Thus, the various economic analyses on the renewable energy-FDI relationship reveal divergent results depending on space and time. If the analysis of the effects of FDI on the energy transition does not seem to adopt unanimity in the light of economic theory, questions arise concerning the analysis of said effect for developing countries in general and for Côte d'Ivoire in particular. Côte d'Ivoire, like certain developing countries, is full of enormous natural resources including renewable energies. For example, in 2023, for the production of electricity alone, renewable energies represented approximately 30% with hydroelectricity and solar less than 2% (Revue des transition, 2025). The country also has enormous potential for renewable energy from biomass sources.

Also, the evolution of renewable energy consumption and FDI in Côte d'Ivoire deserves special attention. For this country, FDI in 1990 represented 0.44% of GDP. In 2000, they represented 1.41% of GDP while in 2010, they amounted to 1.02% of GDP and finally 2.22% of GDP in 2023. During this same period, the evolution of renewable energy consumption is as follows. Renewable energy consumption increases from 73.6% of total energy consumption in 1990 to 73.7% in 2000. Subsequently, from 75.4% in 2010, it rises to 58.2% (WDI, 2024). The evolution of the two variables shows that the consumption of renewable energy decreases at times while FDI increases, raising a fundamental concern: what are the effects of FDI on the consumption of renewable energy in Côte d'Ivoire?

The main objective of this study is to analyze the influence of foreign direct investment (FDI) on renewable energy consumption in Côte d'Ivoire, in order to determine whether capital inflows contribute to accelerating the country's energy transition. To achieve this, the paper is organized into three main sections. The first section presents the conceptual and methodological framework, outlining the theoretical background, the econometric model, and the variables used. The second section reports the empirical results obtained from the estimations. Finally, the third section discusses these results in light of existing literature and draws relevant policy implications. By combining a rigorous methodological approach with an evidence-based discussion, the study aims to provide a coherent understanding of the relationship between FDI and renewable energy consumption in the Ivorian context. To lay the foundation for this

analysis, the study begins by presenting the conceptual and methodological framework, which outlines the theoretical background, the econometric model, and the key variables employed.

1. The conceptual and methodological framework

This section details the estimation method. Indeed, there are several estimation methods for identifying the effects of one economic variable on another. However, some methods provide more robust results than others. Presenting the model specification allows for a better understanding of this analysis.

1.1. Model specification

It should be noted that in order to provide an answer to the problem raised in this study, an econometric model is developed. However, it is first necessary to present the underlying theoretical framework. Thus, referring to previous work, the integration of energy in the production function is retained and the production model of C. Chang and C. Lee (2008: 2359-2373) serves as a basis in terms of theoretical reference. The authors conduct an analysis of the relationship between energy consumption and economic growth in Asian countries, integrating the energy factor into the classic production function. The use of this model is justified not only by its ability to identify the direction of causality between the two variables, but also by its ability to highlight long-term effects. The functional specification of the model is as follows:

$$y = f(K, L, E) \quad (1)$$

Where *Y* represents the gross domestic product, K represents the capital stock, L represents labor and E corresponds to energy and more specifically to the consumption of renewable energy in the context of this study. This model makes it possible to identify the long-term effects of FDI on the consumption of renewable energy. To this end, several studies conducted in this direction have used different methods. Some authors have implemented a non-linear approach, by using the regime switching model to test the existence of the environmental Kuznets curve [2](EKC) (G. Halkos and E. Tsionas, 2001: 191-210).

Furthermore, analyzing the problem of cointegration, unit root, omitted variables and the econometric specification of the EKC, A. Richmond and R. Kaufmann (2006: 176-189) test the evolution of two environmental indicators, namely energy consumption and CO_2 for 36 countries (20 OECD countries and 16 developing countries) over the period 1973 to 1997.

[2] The Environmental Kuznets Curve (EKC) relates per capita income to society's environmental degradation. The curve has the general shape of an inverted U. The theory behind the curve states that less developed economies prioritize meeting basic needs such as nutrition, housing, or health, regardless of the environmental impact. Once the economy has grown sufficiently to meet basic needs, society begins to seek a healthier environment. https://www.eurofiscalis.com/lexiques/courbe-environnemental-de-kuznets/

These authors compare three models: the fixed effects model, the random effects model and the random coefficients model. In this article, the modified least squares or Fully Modified Ordinary Least Square (FMOLS) developed by P. Phillips and O. Sam (1990: 165-193) are used to analyze the long-term effects of FDI on the energy transition. This technique consists of including leading and lagged values of Δx_t in the cointegration relationship in order to eliminate the correlation between the explanatory variables and the error term. It allows to take into account the second-order endogeneity problems of the repressors (generated by the correlation between the cointegration residual and the innovations of the I(1) variables present in the cointegration relationship). and autocorrelation and heteroscedasticity properties of the residuals. The FMOLS estimates are as follows:

$$y_t = \alpha_0 + \sum_{k=1}^{K} {}_k\, y_{t-k} + \sum_{k=1}^{K} \beta_k x_{t-k} + \varepsilon_t \quad avec \quad t = 1,..,T \ (2)$$

and x_t *et* y_t are observations of two stationary variables for a period t.

On the other hand, it should be noted that the selection of variables was made according to the literature, obviously taking into account the objectives of this study. The model for analyzing the long-term effects of FDI on the energy transition is as follows:

$$rener_t = \beta_0 + \beta_1 egro_t + \beta_2 co2_t + \beta_3 inrate_t + \beta_4 corrup_t + \beta_5\, fdi_t + \beta_6 demo_t + \beta_7 busnf_t + \pi_t \qquad (3)$$

Where t represents the time period from 1990 to 2023, β_0 is a constant.

β_t, t = 1 à 7 to are real parameters, π_t represents random and centered disturbances, $E(\pi_t) = 0\ \forall t$

To this end, the presentation of variables remains important. It should also be noted that there are two types of variables. On the one hand, there is the variable that the model explains, namely the dependent variable, and on the other hand, the variables likely to determine the dependent variable, which are the independent variables.

The variable that the model attempts to explain in this study is the energy transition translated by the consumption of renewable energy. Indeed, energy consumption in general and the consumption of renewable energy in particular is necessary for the production of goods and services. The availability of sufficient quantity and quality of electrical energy in a country brings comfort and well-being to households, promotes the development of crafts, industries and small and medium-sized enterprises (IEA, 2017). Thus, the consumption of renewable energy can be encouraged by foreign direct investment.

If the presentation of the dependent variable remains crucial, it also seems judicious to make a presentation of the explanatory or independent variables. Among these variables, on the one hand, are CO_2 emissions. It must be noted that when CO_2 emissions vary downwards, the environmental situation improves, thus reflecting a better quality of it. On the other hand, there is the economic growth rate (egro) translated by the evolution of goods and services produced, namely the GDP growth rate. It should be noted that economic growth, a sign of an increase in wealth created, is one of the objectives of economic policy. Economic growth is a means of increasing the well-being of the population. This variable is likely to cause the consumption of renewable energy. Furthermore, the variable (inrate) defines the inflation rate of the economy. In this study, it represents the consumer price index and its control is important for a good forecast of economic activities. Price stability is recommended by economists. Excessively high prices can make an economy less competitive externally. They can redirect internal resources externally due to the perverse effects they cause. Excessively high prices make it too difficult for households, investors, and businesses to plan ahead.

Foreign direct investment (FDI) refers to investments made by an entity (company or investor) resident in one country to acquire a lasting interest in a business located in another country. This includes the creation of subsidiaries, the acquisition of shares, the reinvestment of profits, or loans between affiliated companies. Foreign companies sometimes bring more efficient and cleaner technologies that can promote the development of renewable energy.

Business freedom (BUSNF) is a variable frequently used in economic and institutional analyses to measure the ease with which companies can start, operate and close their activities in a country. When there is a high level of business freedom, barriers to business development are reduced, leading to the entry of new players into the renewable energy market. This variable is likely to cause the development of renewable energies.

The (demo) variable refers to democracy and is an institutional variable. Indeed, institutions occupy an important place in an economy. Strong institutions increase a country's credibility, making it more attractive to foreign investors, who in turn can contribute to economic growth and, potentially, to the expansion of renewable energy use.

The (corrup) variable, which is an institutional variable, measures the degree of corruption in a country. Its analysis is done in several fields, namely sociology, law, politics and economics. In the context of renewable energy consumption, the effect of corruption is generally negative, as it can distort policy implementation, discourage investment, and undermine market efficiency.

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For the rest of the study, it is useful to identify the source of the data that will serve as the basis for the empirical analysis.

1.2. Data source

The data used in this study are drawn from the World Bank's World Development Indicators (WDI, 2023) and relate specifically to Côte d'Ivoire. The dataset covers the period from 1990 to 2023. For the energy variable, we consider the share of renewable energy consumption in total final energy consumption. This country-specific focus allows for the estimation of the model and the derivation of the results presented below.

2. Results of econometric tests and interpretation

The results obtained highlight the effects of FDI on renewable energy consumption in Côte d'Ivoire. This section begins with descriptive statistics.

2.1. Results of descriptive statistics tests

The results of the descriptive statistics tests are contained in Table 1 below. The majority of variables present a moderate to high dispersion, suggesting significant differences between observations. Some variables (such as CO_2, CORRUP) are more stable, while others such as INRATE and DEMO present strong heterogeneities. The analysis indicates that the variable CO_2 is the least dispersed, its standard deviation indicates the value 0.0699 followed respectively by the variables CORRUP and FDI whose standard deviations are respectively (0.5330; 0.6767). On the other hand, it should be noted that the most dispersed variables are BUSNF, RENER, INRATE, EGRO and DEMO whose standard deviations are respectively (8.6896; 6.4754; 4.8034; 4.2792; 3.0002).

(Tabl. 1): Descriptive statistics tests of the variables

	EGRO	CO2	RENER	FDI	INRATE	DEMO	CORRUP	BUSNF
Mean	3.5389	0.3335	69,700	0.7277	3.3877	1.7058	3.1908	57,179
Maximum	10,760	0.4250	79,100	1.9128	26,081	4,0000	4,0000	42,700
Minimum	-5,370	0.2160	58,200	-0.147	-1.106	-6,000	2.1800	42,700
Std. Dev.	4.2792	0.0699	6.4754	0.6767	4.8034	3.0002	0.5330	8.6896

***Source**: Allo from WDI, 2023*

Once the descriptive statistics tests have been carried out, it is appropriate to carry out the stationarity tests which remain fundamental for the rest of the analysis.

2.2. Stationarity tests of variables

The analysis of the stationarity of a variable consists of verifying the presence or absence of a unit root. A time series is said to be stationary if its expectation and variance remain constant over time, and if the covariance between two observations depends only on the time lag that

separates them (C. Hurlin and V. Mignon, 2006: 253-294). To detect the possible presence of a unit root, several stationarity tests can be used. Among these is the Kwiatkowski, Phillips, Schmidt and Shin (KPSS) test (D. Kwiatkowski et al., 1992: 179), whose null hypothesis postulates the stationarity of the series (absence of a unit root). On the other hand, other classic tests such as those of Phillips-Perron (P. Phillips & P. Perron, 1988: 335-346), S. Im et al. (2003: 53-74) and the Augmented Dickey-Fuller (ADF) test (D. Dickey & W. Fuller, 1981: 1057-1072) consider the existence of a unit root as a null hypothesis. In this study, the Im- Pesaran -Shin tests (S. Im et al., 2003: 53-74) are used to assess the stationarity of the series.

(Tabl.2): Unit root tests on the model variables

	Stationarity	IPS
Variables	Order of integration	Value of Statistics
EGRO	I(I)	-8.345 **
CO2	I(I)	-3.575 **
RENER	I(I)	-3.521 **
FDI	I(I)	-3.808 ***
INRATE	I(I)	-7.286 ***
CORRUP	I(I)	-5,464 ***
DEMO	I(I)	-4.677 ***
BUSNF	I(I)	-4.813 ***

***Source**: Allo from WDI, 2023*

*Note: *; ** and *** respectively significant at 10%, 5% and 1%;*

The study of stationarity shows that for these variables, the null hypothesis of the presence of a unit root could not be rejected at level, indicating their non-stationarity. However, after first differentiation, the tests confirm their stationarity. Thus, all the series in the panel are integrated of order one, I (1). It is therefore appropriate to analyze the cointegration between the variables in order to highlight a possible long-term relationship. The Johansen test is particularly relevant in this context, especially when the variables are integrated of the same order (S. Johansen, 1988: 254).

2.3. Results of the model cointegration tests

There are different statistical methods to test a cointegration relationship between variables, the most common techniques being that of W. Granger (1969: 427) and that of S. Johansen (1988: 254). Johansen's method to the detriment of that of Engel and Granger is used in this study. This applies to integrated variables of the same order. Johansen's method is based on the maximum likelihood technique. The procedure of the Johansen cointegration test is based precisely on the determination of the rank of the matrix ∏, noted r; r represents the number of cointegration relationships, from the trace statistic and that of the maximum eigenvalue. The trace statistic is presented as follows:

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$$Trace(H_0(r)/H_1(k) = -T\sum_{i=r+1}^{p}\ln(1-\phi_i)\ (4)$$

ϕ_i : is the i[th] estimated maximum eigenvalue.

The question is to test the null hypothesis H $_0$(r): rank (∏) = r, of cointegration of rank r (number of long-term vectors or cointegration relations) against the hypothesis H $_1$(k): rank (∏) = k. The null hypothesis is rejected when the calculated statistic is less than the critical value.

- ❖ The maximum eigenvalue statistic

$$\phi_{\max}(H_0(r)/H_1(r+1)) = -T(1-\phi_{r+1})\ (5)$$

ϕ_i :is the i[th] estimated maximum eigenvalue

This involves testing the null hypothesis H $_0$(r): rank (∏) = r (cointegration number) against the hypothesis H $_1$(k): rank (∏) = r +1. This is rejected when the calculated statistic is lower than the critical value. The results obtained are grouped in the following table:

Tabl.3: Johansen cointegration test of variables

Equation number of assumed cointegration	Trace statistics	Critical value at (5%)
None ***	238.5690	159.5297
At most 1 ***	161.4618	125.6154
At most 2 ***	191.8483	113.4584
At most 3 **	76.75080	76.75080
At most 4 *	45.08794	45.08794

***Source**: Allo from WDI, 2023*

***Note**: *; ** and *** respectively significant at 10%, 5% and 1%;*

Two statistics relating to the cointegration test are presented in the context of this study (the eigenvalue statistic and the trace statistic). The trace statistic, which is the most used test, is implemented. It is also a question of testing the null hypothesis (H_0) of the existence of a cointegration relationship between the variables. H $_0$ is rejected if the value of the trace statics is less than the critical value, otherwise it is accepted. The results recorded in the table above show that the value of the trace statistic (238.5690) for the first line is greater than that of the critical value at 5% (159.529). This fact leads to accepting the null hypothesis of the existence of a cointegration relationship between the variables. Regarding the next line, which tests the hypothesis that at most one cointegration relationship is accepted, the value of the statistic's trace (161.4618) is also greater than that of the 5% critical value (125.6154). The third line gives the same information, namely that the statistic's traces are all greater than the 5% critical values.

In conclusion, the results of the table reveal the existence of at least one cointegration relationship between the variables, so the variables in the model are all integrated. Therefore, there is a long-term relationship between renewable energy consumption and FDI in Côte d'Ivoire. It is therefore more important to use a model that allows analyzing long-term relationships between the variables in the model.

3. Discussion of results

The results of the estimations below are obtained through the FMOLS. Indeed, the FMOLS allow us to have the long-term effects of FDI on the consumption of renewable energy. The results obtained are grouped in the following table:

Tabl.4: Results of model estimations by FMOLS

Dependent variable: RENER	
VARIABLES	**FMOLS**
FDI	-2.3545 **
EGROW	0.1501
INRATE	-0.0144
CO2	-65.30 ***
BUSNF	-0.4079 ***
DEMO	0.0552
CORRUP	3,454 **
NUMBER OF OBSERVATIONS: 33	ADJUSTED R-SQUARED: 0.838420

***Source**: Allo from WDI, 2023.*

***Note**: *; ** and *** respectively significant at 10%, 5% and 1%;*

The results obtained through the FMOLS indicate that in the long term, the energy transition is significantly determined by FDI, CO2 emissions, business freedom and corruption.

First, foreign direct investment (FDI) has a significant and negative impact on the energy transition (RENER) in Côte d'Ivoire. Thus, an increase in FDI leads to a reduction in renewable energy consumption. This negative effect may have several explanations. FDI could be directed toward energy-intensive and fossil fuel-based sectors such as extractive industries and manufacturing. Also, FDI attraction policies may lack environmental conditionalities. For example, authorities do not sufficiently condition investments on the use of clean or renewable technologies, while subsidies, tax exemptions, or incentives granted to investors do not prioritize green projects. It should also be noted that a weak or inconsistent regulatory framework can discourage investment in renewables. This may include ongoing subsidies for fossil fuels and the absence of a guaranteed feed-in tariff for renewables. It should also be noted that some positive effects of FDI on the energy transition may be delayed over time, with initial investments in fossil fuel infrastructure coming first and the development of renewables only

coming in the secondary or tertiary phase. These results are similar to those found by Peng et al., (2024) for 65 countries but contrary to those of P. Sadorsky (2010).

Secondly, CO_2 emissions have a significant and negative effect on the energy transition in Côte d'Ivoire, in other words, an increase in CO_2 emissions is associated with a reduction in the consumption or development of renewable energies. High CO_2 emissions often reflect a strong dependence on fossil energy sources (oil, coal, gas). The development of various economic activities in Côte d'Ivoire is a high emitter of CO_2. For example, transport activities using fuel, extractive industries require a large amount of fossil energy consumption to the detriment of renewable energies. The negative effect of CO_2 emissions on the energy transition in Côte d'Ivoire can be understood as a reflection of an energy model that is still highly carbon-intensive, an institutional framework that provides few incentives, and a lack of robust environmental policies. These results confirm those found by P. Sadorsky (2009).

Furthermore, the results indicate that freedom of business (BUSNF) negatively and significantly affects the energy transition in Côte d'Ivoire, reflecting the fact that an increase in freedom of business slows down the energy transition. This result can be explained by several mechanisms related to the structure of the economy, the regulatory framework and incentives to the private sector in the Ivorian context. When freedom of business improves, economic agents may seek to reduce costs by using conventional and cheaper energy sources in the short term, namely fossil fuels. Greater freedom of business, in a context where environmental incentives are weak or absent, can favor fossil-based energy choices, thus slowing down the energy transition. These results confirm those of Omri et al. (2014) who show that economic freedom (including freedom of investment) can contribute to pollution if not regulated.

Finally, the corruption variable has a positive and significant effect on the energy transition in Côte d'Ivoire. This result indicates that the rise in corruption contributes to an energy transition. The positive and significant effect of corruption on Côte d'Ivoire's energy transition is unexpected. Large renewable energy projects, often funded by international donors such as the EU and the World Bank, may proceed despite partial resource diversion by corrupt networks. In such cases, renewable capacity continues to expand. This paradox reflects a transition advancing in scale but not in governance quality. It should be interpreted cautiously, considering local institutional dynamics, data limitations, and methodological constraints.

It is therefore certain that foreign direct investment does not contribute to the development of renewable energy in Côte d'Ivoire, despite directives and recommendations at the national and

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supranational levels for a sustainable development process. Furthermore, among the factors hindering the energy transition are CO2 emissions and business freedom.

Conclusion

The main objective of this study was to analyze the impact of foreign direct investment (FDI) on the energy transition in Côte d'Ivoire. The results from the FMOLS estimation reveal that, contrary to expectations, FDI, like business freedom, hinders the adoption of renewable energies. This finding suggests that in a context of economic openness lacking strict environmental regulations, investors favor conventional energy solutions, which are less expensive in the short term but more polluting. Furthermore, the negative relationship between CO_2 emissions and the energy transition confirms the country's heavy dependence on fossil fuels, making the transition more difficult without deep structural reforms. More unexpectedly, the positive correlation between corruption and the energy transition could be explained by the pursuit of projects supported by international donors, despite a fragile institutional framework. The findings underscore that foreign direct investment, without robust environmental policies and effective incentives, does not guarantee a sustainable energy transition. To support this transition, Côte d'Ivoire must strengthen governance and transparency to reduce corruption and improve project oversight. It is essential to enforce green investment regulations that ensure environmental compliance and sustainability standards. Targeted public policies and incentives should be implemented to attract and direct foreign capital toward renewable energy projects. Additionally, fostering capacity building and providing technical support to local stakeholders will enhance renewable energy deployment and management. Promoting public-private partnerships can leverage international funding alongside local expertise, while increasing awareness and education campaigns will build social acceptance and demand for renewable energies. Together, these measures will create an enabling environment for a sustainable and inclusive energy transition aligned with climate objectives.

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