

Research Article

Private Philanthropic Cross-Border Flows and Sustainable Development in Africa

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ABSTRACT

The paper examines the simultaneous impact of private philanthropic cross-border funding from international foundations on the economic, social, and environmental dimensions of sustainable development in Africa. The vector error correction model (VECM) was used, and contrary to expectations drawn from past studies, funding from this source improves economic growth, advances human development, and enhances environmental quality. Causality test results also disconfirmed the assumption that interactions among the three dimensions were positive and complementary in the long term. The environment variable was found to be non-complementary. Based on these unique results, theoretical propositions are made with an underlying mechanism of action. Practical and policy implications, limitations, and directions for future research are discussed.

Keywords: Africa; Managing in emerging and less developed economies; Philanthropy; Private foundations; Theory Development; Sustainable Development.

INTRODUCTION

To what extent do philanthropic cross-border flows from private international foundations affect the three components of sustainable development (SD) – economic growth, human development, and environmental quality – and why and how do the four variables interact? To answer this question existing literature has mostly focused not on private international philanthropic funding specifically, but on foreign direct investment (FDI) and foreign aid (Arvin, Dabir-Alai, and Lew, 2006; Tvaronaviciene and Lankauskiene 2011; Voica, Panait and Haralambie, 2015; Ridzuan, Ismail and Hamat, 2017; Sahoo and Sethi, 2017; Boly, 2018; Alshubiri and Elheddad, 2019; Opršal and Harmáček, 2019). Notably, funding by private international foundations is a specialised form of foreign aid that comes with the release and deployment of impact-seeking resources and influence on stakeholders. Yet, existing literature does not specifically address this form of financial flows and their linkages with SD (Hamann, 2003; Ricciuti, 2016). The Brundtland (1987) report entitled “Our common future”, defined SD as “development that meet[s] the needs of current generation without compromising the ability of future generations to meet their own needs” (p. 292).

The SD literature has evolved from the margin to the mainstream in the last few decades evoking intense debates, critiques, and challenges. Regarding the assumptions that

the triad of components in SD are independent, interrelated, and of equal importance, the supporting logic is that attaining optimal conditions for any one of them does not result in the conditions for overall sustainability. Joint-optimality among all three simultaneously is necessary for development to be sustainable. However, in practice, implementation of the three components is disaggregated, each with different time horizons. People have different doubts about society's competence to manage the ecosystem and have different attitudes towards uncertainty about the impact of human activities. Besides, sustainability is conceptualised at various levels – geographically, organisationally, and at the product life cycle level. Moreover, there are contradictions among the triad: property conflict between equity and growth resulting from contending assertions on property use; resource conflict among ecological and economic utility stemming from the use of resources; and, conceptual disagreement between environmental preservation and social equity, resulting from the contradiction between environmental protection and bettering the standard of living. These conflicts have to be negotiated, resolved, and managed to achieve SD. Above all, critiques have questioned the precision and adequacy of the triad framework from practical and theoretical perspectives arguing for extra components or introducing alternative systems (Hawkes, 2001; Peterson, 2016).

Another pattern in the literature is the choice of methodology, which ranges from qualitative surveys (Ridzuan et al, 2017) to various quantitative approaches including integrated impact assessment (Bond, et al, 2001) and Ordinary Least Squares (OLS) (Voica et al, 2015; Ridzuan et al, 2017). Besides conceptual disagreements and diverse methodologies, work on different regions across the world at different levels of economic development has suggested the strong influence of pre-existing contextual variables in determining the contributions of foreign funding to SD (Tvaronavičienė and Lankauskienė 2011; Voica et al, 2015). Examples include enforcement of regulations, competitiveness, economic systems, and policies as well as the level of technological advancement. Given this observation and considering that Africa hosts a large number of countries in the least developed category, findings of this study were expected to generate unique knowledge. Yet, this area of study has been relatively unexplored, ignored, and placed in the background. Particularly, the literature has not explained why the linkages between a funding source such as private international foundations and the components of SD must be different in the African context, how the three components interact with each other, and why. Lastly, what happens when the interaction occurs; in other words, what are the implications of the nature of the interactions for theory and practice? This gaping lacuna in the literature motivated this study.

For the purpose of the study, the definition of private philanthropic foundations by Pratt et al (2012, p. 4) was used:

“organisations characterised by charitable or philanthropic intentions, usually to address issues of common social, or economic interest; founders with charitable or social intentions, for example, individuals, families, companies, communities, specialist groups or associations; having own income and funds, which are privately raised, in other words not through public sector grants; performing a public benefit role – either as grantors funding other organisations or persons; implementing their own projects or in collaboration or partnership with others; a philanthropic legal status such as a trust or not-for-profit organisation; and independent governance structures (boards, trustees, etc.)”.

The above inquiry was addressed empirically by performing Granger test under VECM to establish unidirectional or bidirectional causality among the variables on a sample of 42 African countries for the period 2006 to 2018. Following this, results not easily explained by current theories required deeper inquiry for novel insights. This task was undertaken in section 5 where *post-hoc* propositions and an underlying theoretical mechanism were proposed. Specifically, the pragmatic empirical theorising approach – an approach that employs interesting empirical findings to inform the initial steps in the theorising process in the abductive tradition – was adopted (Shepherd and Suddaby, 2017).

The study argued that: (i) contextual deficiencies of social, economic, technical, and institutional nature such as extreme poverty and weak institutions exacerbated the pre-conditions for overall positive philanthropic funding impact. However, (ii) the introduction of adequate critical sustainability transition resources such as new knowledge for enhanced awareness, direct incentives, technological innovation to reduce carbon emission while increasing productivity and profitability contributed to improving overall impact particularly of the environment variable. Finally, (iii) the three variables were not altogether complementary. For example, the economic variable was strongly correlated with education, health, and income that measure the social goal. This relationship was strongest in least developed economies (Deb, 2015). However, the environment variable was not directly correlated with the other two.

Overall, this article makes at least five contributions. First, the philanthropy-SD literature is enriched by offering theoretical propositions together with a context-sensitive operating mechanism. Second, empirical evidence is provided, for the first time, about the contribution of foreign-sourced private philanthropic funding to economic growth, human development, and environmental quality in Africa. Third, the assumption of interrelationships among the dependent variables that underlie the SD framework is validated by demonstrating that the three variables, indeed, interact in the African context. A further contribution demonstrates that while the social and economic variables are complementary, the environmental variable is not. Fifth, earlier studies on FDI/foreign aid and SD concentrate on developed and developing countries. Never before have African countries been systematically studied as a region using a common design and methodology as in this study. Above all, the study has implications for theory advancement from the propositions made, as well as for policy and management.

Section 2 appraises the pertinent literature while section 3 delineates the methodological procedures. Data are presented and analysed in section 4, while empirical generalisation, theoretical propositions, and a mechanism of behavioural change are presented in section 5. The discussion is undertaken in section 6, and the conclusion in section 7.

THEORETICAL AND EMPIRICAL BACKGROUND

Sustainability

The development literature characterises sustainability from various perspectives as: (i) inter-generational and intra-generational distribution of resources efficiently and equitably for socio-economic action within a confined ecosystem (Stoddart, 2011); (ii) dynamic equilibrium between a population and the carrying capability of its environment so that the population may develop its ability without creating undesirable effects on the environment (Ben-Eli,

2015); and (iii) the ability of human activities to pacify the wants and needs of humans without exhausting or draining the productive resources available to them (Brundtland, 1987).

Most scholars rely on few theories to explain the sustainability process. These include social movements theory (Weber, Heinze and DeSoucey, 2008); institutional theory (Zietsma and Lawrence, 2010); cognition (Bansal, Kim and Wood, 2018); competitive strategies (Flammer, 2018); and, non-market strategies (Lyon et al, 2018). These theories evolve from the core social science disciplines of economics, sociology, and psychology, however do not adequately explain the interactions between social and biophysical domains. However, recent advances in environmental sociology and geography, for example, appear to be heading for a transdisciplinary theoretical lens (Bauch, Signel and Pharaon, 2016; Vihervaara, Kumpula and Tankanen, 2010). Four emerging sustainability transition theories, all of which emphasise alternative processes that lead to sustainability in any given system are outlined.

Resilience theory

In resilience theory, resilience is described as the “*capacity of a system to absorb disturbance and re-organize while undergoing change so as to retain essentially the same function, structure, identity, and feedback*” (Walker et al, 2004, p. 1). The socio-ecological system demonstrates its resilience by adapting itself or transforming entirely into a new system. Thus, the aptitude of the system’s actors to self-organise or innovate matters most.

The Multi-Level Perspective

The multi-level perspective on transition to sustainability perceives a techno-sociological system operating at three levels, micro, meta, and meso (Geels and Schot, 2007). It is a middle-range framework, which posits that transitions come about through interaction processes within and among the three levels. The micro level represents radical innovation, and the meta level the stabilisation of existing trajectories through cognitive routines, rules, and standards, as well as investments. The meso level represents the exogenous environment where changes occur more slowly.

Decoupling theory

This is essentially an ecological-economic decoupling analytical framework that adopts life-cycle analysis and material flows to evaluate the extent to which an economy is able to grow without corresponding environmental degradation. Decoupling is measured by emission intensity that accompanies production. Therefore, if an economy is able to grow while reducing the amount of fossil fuels resources, for example, and delink environmental pressure at the same time, it is said to be decoupled (Gupta, 2015).

Behavioural change theory

Behavioural change theories posit that a change in behaviour is a necessary requirement for transition to sustainability. This, in turn, depends on changes in values, norms, and beliefs when interacting with the natural system at individual and collective levels (Stern, 2000). For example, behavioural patterns regarding consumption, exploitation of resources, production, and waste must drive actions towards sustainability.

The mechanism of change outlined later in the paper, incorporated all four theories. It suggested two conditions for SD to occur. First, actors must interact with a mix of resources, which include technological innovation, for decoupling to occur. Second, it is supported at micro, meso and meta levels by governance structures, rules and regulations not only for acceptance to occur but also for the appropriate behavioural change to come about through self-organisation and changes in norms and values.

Sustainable Development

SD from the discussion thus far, is a paradigm, an approach, a process, as well as an organising principle for integrating, while guaranteeing equilibrium between economic, social, and environmental concerns of society both inter- and intra-generational (Stoddart, 2011; Kolk, 2016; Schaefer and Crane, 2005). The theoretical and practical implications of the three pillars of sustainable development are outlined in the sub-sections that follow.

Economic sustainability: Neoclassical economics assumes unlimited supply of natural resources because it is replenishable during production through technological advancement (Cooper, Vargas and Vargas, 2004; Du and Kang, 2016). This assumption has been falsified since natural resources are limited and not necessarily replenishable nor renewable. Therefore, uncontrolled growth and consumption is not feasible with increasing populations. Economic sustainability is, therefore, achievable only through equitable and fiscally sound decisions (UNSD, 2018; Zhai and Chang, 2018).

Social sustainability: Social sustainability entails a range of notions including accessibility, cultural identity, empowerment, equity, participation, institutional stability, human rights, equality and the rule of law, and gender equity among others. This implies that although people matter, poverty alleviation must not be pursued at the cost of environmental degradation and economic or social instability (Goodland and Daly, 1996; Farazmand, 2016). It must be sought within the resource and environmental base of society (Kumar, Raizada and Biswas, 2014).

Environmental sustainability: Environmental sustainability concerns the natural environment’s resilience and productiveness in supporting human life, as well as the carrying capacity of the natural environment and ecosystem’s integrity (Brodhag and Talière, 2006). This implies that since the earth’s systems have confines within which

balance and stability are sustained, the rate of harvesting natural resources ought not to surpass their rate of regeneration. Consequently, the wastes emission rate must not exceed their assimilation rate by the environment. This theory is validated by the devastating effect of climate change on biodiversity (Kumar, Raizada, and Biswas, 2014).

The concept of SD has been widely critiqued and variously interpreted over time and across different disciplines. All this, is to adapt the concept to the complexity of the global environment. However, the underlying principles, goals and problems of implementation remain largely unchanged, although some goals have been refined and new ones proposed to align with the framework of the Sustainable Development Goals (SDGs) of 2015. The SDGs outline the challenges facing humanity to strive not only to attain SD but more fundamentally to survive on Earth (Fukuda-Parr, 2016).

Private Philanthropic Foundations and International Development

The trend in private philanthropic funding for international development is rapidly expanding, which has led to increasing roles for private donors, while the sources of private giving have diversified. They include web-based personal giving; income generating activities such as franchise-based social enterprise; community foundations; trusts; and private philanthropic foundations. The foundations are categorised according to generational differences and level of engagement.

Traditional foundations

Traditional foundations are characteristically reactive but not necessarily proactive (Sealander, 1997). In spite of several ambitious large-scale economic and social projects undertaken around the world, commentators have criticised them for replicating the flaws of public international aid and failing to promote sustainable development at the local level (Burkman, 2011). They are grounded philosophically and operationally in Western interpretation of development that ignores the relevance of histories and contexts (Sutcliffe and Carroll, 1999). Consequently, they have a tendency for the top-down approach lacking in communication, accountability, and evaluation.

Modern philanthropy

Modern philanthropic practices emerged in the latter part of the 20th century as a reaction to traditional philanthropy, and is characterised by three identifiable approaches – social justice philanthropy, social entrepreneurship, and strategic adaptation. It blends social purpose with business approaches that emphasise efficiency, direct engagement, problem solving, evaluation, impact, innovation, and leverage (Plewes, 2008). This form of philanthropy has been described as essentially ‘philanthropy-capitalism’

and ‘imperial benevolence’ (Richardson, Gilbert & Tiffin, 2008; Edwards, 2009). Its critics, therefore, see it as a neo-colonial charity that overlooks human virtues of equality and empowerment in line with SDGs.

Post-modern philanthropy

According to Novelli, Morgan, Mitchell and Ivanov (2015), postmodern philanthropy embraces an approach that looks beyond modernism. However, it has many similarities to social justice philanthropy, strategic social entrepreneurship and even traditional philanthropy. The purpose of post-modernism is to redistribute wealth by donating money, capacity building, advancing solutions to social economic problems, conservation, and community development. It is characterised by the unidirectional transfer of funds, labour, and other resource flows including new sources of funding for locally defined priorities. Its positives include empowering local communities, capacity building, strengthening collaboration and partnerships, complementing microfinance ventures and leveraging resources and initiatives of government and the private sector. However, postmodern philanthropy is criticised for perpetuating power binarism embedded in neo-liberal paternalistic ideologies of development and dependency.

In sum, foundations have been criticised for their lack of legitimacy, effectiveness, and accountability. The concern about their legitimacy relates to questions about the morality and lawfulness of the remarkable influence they wield in setting global agendas that interest them, their expansive, self-serving networks and their lack of transparency in decision-making as non-profit, tax-advantaged organisations (Palmer, 2012; Anheier and Leat, 2013). To the extent that foundations set their own priorities, which tend not to correlate with recipients’ needs, they are considered ineffective. In addition, the practice of collaborating with the private sector exposes them to charges of conflict of interest and philanthropy-capitalism (Edwards, 2010). Finally, the weak accountability criticism stems from their unique stakeholder relationship. Their employees are accountable to trustees who are accountable to nobody, and there is usually a lack of information about their decision-making process (Reich, 2013). While acknowledging all this, contrarily it is the combination of global influence, wide and reliable networks, and the ability to apply the business logic wherever required to procure and deploy the necessary resources to a dedicated project, which enable foundations’ funding to perform better than ordinary foreign aid.

Empirical Studies

This review of the empirical literature covers developed countries, developing countries, and some of the least developed countries across the world. Alshubiri and Elheddad’s (2019) study examined the economic growth, foreign finance, and carbon dioxide emissions nexus for 32 OECD countries for the period 1990 to 2015, using panel

data techniques. They established an inverted U-shaped association among foreign finance and environmental quality. Foreign finance in the initial stages, contributes to significant increases in CO₂ emissions, but beyond a threshold, it becomes environmentally friendly by contributing to reductions in CO₂ emissions. A similar quantitative study by Voica et al (2015) employed data for 28 EU countries for the period 2000 to 2012 to investigate how SD is related to the stock and flow of FDI. They found that FDI makes the greatest influence on environmental indicators followed by economic and then social indicators. Furthermore, private initiatives supersede public efforts in achieving impacts.

In a study of 83 countries, classified into economic development categories, and aimed at formulating hypotheses about the impact of FDI on indicators of the three components of SD, Tvaronavičienė and Lankauskienė (2011), proposed the following hypotheses based on intensive literature reviews. *The influence of FDI on SD differs according to the extent of economic development - the developed countries gain the most, the developing countries benefit to a lesser extent and the least developed countries benefit the least.* Three studies of developing countries - Pakistan, India, and Czechoslovakia, however, give varying results. Opršal and Harmacek (2019) examined the responsiveness of foreign aid to environmental performance and the needs of Czechoslovakia using regression techniques on data collected for the period 2000 to 2015; they found that foreign aid has limited effects on the country's environmental needs. This contrasts the result of an inquiry by Sahoo and Sethi (2017), who probed the impact of foreign aid on environmental quality in India over the period 1970/1971 to 2010/2011 with the aid of OLS techniques, and established that foreign aid contributes to a reduction of environmental pollution. On the other hand, a similar Pakistani study undertaken by Yousaf et al (2016) for the period 1972 to 2013, with the support of autoregression distributed lag (ARDL) bounds testing techniques, found that foreign loans and grants contribute significantly to environmental degradation.

In a study solely focused on 124 developing countries over a 40-year period, to examine the manner in which aid flows are associated with the environment, Arvin et al (2006) used the Granger causality method and established very mixed results. The results suggest that higher infusion of aid increased the level of environmental pollution in 38 countries including Singapore and 11 African countries. Contrarily, a study of Singapore by Ridzuan et al (2017) using ARDL estimation techniques on data collected over the period 1970 to 2013 to investigate the linkage between FDI and SD shows that SD improves environmental quality but increases inequality. This further demonstrates the wide variations of results across countries. Boly (2018) empirically examined the role played by foreign aid in CO₂ emissions in 112 developing countries over a more recent period, 1980 to 2013. The impact of foreign aid depends

on the type of donor; typically multilateral donors perform better than do bilateral donors. In addition, the amount of aid is important for any noticeable impact. Finally, in a quantitative study of 20 developing countries over the period 2001 to 2012, Dhahri and Omri (2018) confirmed empirically that the three pillars of sustainable development, indeed, interact as assumed in the theoretical SD framework. The following *a priori* propositions were drawn from the above review:

- The higher the level of development, the more considerable the impact of foreign aid on the three components of SD.
- The higher the level of development, the more sizeable the impact of foreign aid on environmental quality at each stage of the inverted U-shaped curve.
- The greater the quantity of foreign aid over time (the short- and the long- run) the greater the impact on the three components of SD.
- The impact of foreign aid depends, largely, on donor characteristics including the capability for stimulating recipient governments' involvement in project targeting and scaling.
- The three pillars of SD – economic, human, and the environment – do interact positively with each other.
- The economic, institutional, socio-cultural, and other contextual conditions of a country contribute to the impact of foreign aid on SD. The lower the level of development, the more inadequately these conditions are fulfilled and, therefore, the lower the impact of foreign aid on SD.

DESIGN AND METHODOLOGY

Data

The independent variable, private philanthropic cross-border flows, was retrieved from the OECD Creditor Reporting System (CRS) database. The three dependent variables of interest, economic growth, human development, and environmental quality were obtained from the World Bank World Development Indicator (WDI) and United Nations Development Programme (UNDP) databases. The study employed annual data for 42 African countries over the period 2006 to 2018. Similar to Dhahri and Omri (2018), since the VECM is a restricted variance (VAR), designed for use with non-stationary series and known to be cointegrated, the study opted to refrain from obtaining the logarithm of the data when it was established that it was not stationary at levels but cointegrated. Moreover, as the data was integrated of the same order with other variables the study proceeded with unlogged data.

The following variables comprised the data: (i) private philanthropic cross-border flows measured by the Private Philanthropy for Development variable from the Creditor Reporting System (CRS) database. This database provides information on the basis of donor source, sector, channels,

Table 1: Variable descriptions and data sources

Variable name	Description	Source
Private philanthropic cross-border flows	Transactions from the private sector that encourage the welfare and economic development of developing countries as the primary objective and which stem from foundations' own resources.	OECD Creditor Reporting System (CRS) database
Environmental quality	Per capita CO ₂ emissions (in metric tons)	World Bank (WDI)
Economic sustainability	Per capita GDP (constant 2010 US\$)	World Bank (WDI)
Social sustainability	Human Development Index (HDI): a country's average attainment of important aspects of human development	World Bank (WDI)

and type of aid thereby distinguishing between other funding sources such as ODA and private philanthropic foundations' funding; (ii) environmental quality, evaluated using per capita CO₂ emissions in metric tons; (iii) economic sustainability, computed by per capita GDP (constant 2010 US\$) and; (iv) human development, quantified using the Human Development Index (HDI) (Gürlük, 2009; Dhahri and Omri, 2018). The HDI provides quantification of a country's average attainment of important aspects of human development. It encompasses the geometric mean of normalised indices for a country's life expectancy, education levels, and income levels. Details of the variables used and their sources are presented in Table 1. The study followed Sagar and Najam (1998); Watkins (2007), and Dhahri and Omri (2018) and used the HDI rather than the Modified Human Development Index (MHDI).

Model

In order to test for the impact of private philanthropic cross-border flows (PHIL) on the three components of SD among the respective countries, a series of tests was employed. First, after recording descriptive statistics and cointegration, cross-sectional dependence was examined by way of the Levin, Lin and Chu (2002) *t*-test; Im, Pesaran and Shin (2003) *W* stat test; the ADF and PP Fischer Chi², and Pesaran (2004) Cross-Sectional Dependence (CSD) tests. According to Neaime (2016), time series data typically display indications of non-stationarity, as both the variance and mean of financial variables frequently drift upwards over the course of time. Thus, the stationarity of the variables was established by applying Fishers Phillips Perron (PP) and Augmented Dickey Fuller (ADF) unit root tests. These tests for non-stationarity were employed prior to the vector error correction model (VECM) to investigate the prospects of significant long-run relationships i.e. cointegration tests.

The following regressions were utilised:

$$\Delta Z_t = \beta_1 + \varphi_2 Z_{t-1} + \sum_{i=1}^k \delta_i \Delta Z_{t-i} + \omega_t \quad (1)$$

Where the first difference operator was Δ , β_1, δ_i and φ_2 was a constant parameter, which denoted a white noise indicator. Ascertainment of the number of lags (*k*) was rooted on the Akaike information criterion (AIC). The PP test entailed the estimation of equation 1, and a non-parametric correction of the *t*-statistic for common forms of autocorrelation in the errors.

The Pedroni cointegration test was utilised to probe the presence of long-run relationships among variables. The test is rooted in the maximum likelihood estimation, which suggests two well-defined tests to establish likelihood ratios. This comprises the trace test and maximum Eigen value statistics. The trace test established the null hypothesis which implied that the number of cointegrating vectors is zero (no cointegration), and examined whether the null hypothesis could be rejected. It might be deduced that the non-existence of a long-run relationship among variables were non-stationary if the value of *r* equals zero. This entailed no cointegration (Osterwald-Lenum, 1992). The null hypothesis of cointegrating vectors and the alternative hypothesis concerning (*r* + 1) cointegrating vectors were established by the maximum Eigen value test. The Pedroni test commences with a vector autoregression (VAR) of the order *p* denoted by:

$$I_t = u + A_p I_{t-1} + \dots + A_p I_{t-p} + \varepsilon_t \quad (2)$$

Where I_t signified the (*n* x 1) vector of integrated *I* (1) PHILs of each country in the sample, ε_t denoted an (*n* x 1) innovations vector. Furthermore, the likelihood ratio test included the maximum Eigen value and the trace test statistics, expressed in equations 3 and 4 respectively (Lütkepohl, Saikkonen and Trenkler, 2004).

$$\lambda_{\text{Trace}}(r) = -S \sum_{i=r+1}^n \ln(1 - \hat{\lambda}_i) \quad (3)$$

$$\lambda_{\text{Max}}(r, r+1) = -S \ln(1 - \hat{\lambda}_{r+1}) \quad (4)$$

In equations 3 and 4 the quantity of practical observations was determined by S , while estimated Eigen values attained from the approximated matrix were represented by λ . Regarding the trace statistic, it tested the null hypothesis that the number of distinctive cointegration vectors was equal to or less than r opposed to a general alternative. The λ_{Max} statistic assessed the null hypothesis in such a manner that the number of cointegrating vectors was r in contrast to the alternative of $r + 1$ integrating vectors (Neaime, 2016).

Fully Modified Ordinary Least Squares (FMOLS) and Dynamic Ordinary Least Squares (DOLS) estimates.

Pursuant with Dhahri and Omri (2018), the methods of effective estimation was employed to implement tests on cointegrated vectors. Several methods, including the Fully Modified Ordinary Least Squares (FMOLS) and Dynamic Ordinary Least Squares (DOLS), induce normally distributed estimators. These estimators also present bias towards small samples but achieve more efficient estimates than the basic ordinary least squares (OLS) technique (Dhahri and Omri, 2018).

Vector Error Correction Model (VECM).

Subsequent to determining whether PHIL and the three variables are cointegrated, a VECM was utilised to link the short-run behaviour of PHIL to its long-run values. Initiated by Sargan (1964) and subsequently expanded by Engel and Granger (1987), the VECM represents system cointegrated variables by soliciting Grainger's representation theorem (Engle and Granger, 1987). Trailing studies by Engle and Granger (1987), and Dhahri and Omri (2018) the VECM panel model was employed to assess any Granger causality relationships between environmental quality and HDI. When the terms to the right-hand side of equation three were added and subtracted, it lends that:

$$\Delta I_t = \gamma + \pi I_{t-1} + \sum_{i=1}^k C_k \Delta I_{t-k} + \varepsilon_t \quad (5)$$

Where ΔI_t pertained to the vector of PHIL in first difference; π was a matrix of error correction variables exhibiting the pace of adjustment in the direction of the long-run equilibrium; ε_t was a column vector composed solely of shocks; and γ tallied with a vector of constants that concern the waxing trend with the progression of time. Rank was between 0 and n , at which n was the quantity of variables of interest.

EMPIRICAL ANALYSIS

Results of the descriptive analysis and correlation matrix are displayed in Tables 2 and 3 respectively.

The highest levels of philanthropic flows and carbon emissions were found in Nigeria (134,18) and South Africa (8,87), while the smallest mean for philanthropic flows (0,03) and carbon emissions (0,04) were for Equatorial Guinea and Burundi respectively. Furthermore, Burkina Faso (1,56) held the highest average measure of human development followed by Tunisia (0,72). The lowest, however, was Niger (0,34). Nigeria (63,62) was the most volatile in terms of philanthropic flows, followed by Kenya (26,13) and South Africa (26,02). This volatility is typical on the African continent and among the philanthropy arena (Ouma, 2020). In terms of GDP, Equatorial Guinea (3292,91) displayed the most volatility. Burkina Faso (1,19) exhibited the highest volatility concerning human development. Finally, in respect of carbon emissions, Equatorial Guinea (1,54) and South Africa (0,62) were the most unstable.

Inspection of the correlation coefficient, displayed in Table 3, suggests that multicollinearity was not likely to misrepresent the regression model results. It was apparent that the highest association occurred between carbon emissions and GDP per capita (as was the case in the study by Dhahri and Omri (2018)), and the lowest between philanthropic flows and carbon emissions. This suggested that environmental degradation and economic growth are significantly associated. Additionally, carbon emission was positively and significantly associated with both GDP and HDI.

Table 4 exhibits results of the initial procedure, which applies a battery of tests including the Levin, Lin and Chu (2002) t-test; Im, Pesaran and Shin (2003) W stat test; and the ADF and PP Fischer χ^2 ; and Pesaran (2004) and Cross-Sectional Dependence (CSD) tests, to assess the cross-sectional dependence and panel root existence in the data. Results supported the rejection of the null hypothesis of cross-sectional independence across variables.

Results in Table 5 denoted integration of all the series at order I (1). As the dependence and cross-sectional stationarity had been established, the Pedroni cointegration test was reapplied to assess the existence of long-run relationships among the integrated variables (Pedroni, 1997). Here, four within dimension (panel) and three between dimension (group) test statistics were utilised. The within dimension results indicated compelling evidence to reject the null hypothesis of no cointegration among the panels. Thus, the philanthropic flows, carbon emissions, GDP per capita, and HDI variables were cointegrated in the sampled African countries.

Next, the long-run cointegration was estimated by way of the Fully Modified Ordinary Least Squares (FMOLS) and Dynamic Ordinary Least Squares (DOLS) techniques for the four variables. Table 6 offers empirical results of the FMOLS and DOLS, which were also measures of long-run elasticity. The coefficients for the first equation under the FMOLS were -15,256, 0,006, and 223,384 for carbon emissions, GDP, and HDI respectively. It was established that carbon emissions exerted a statistically significant,

Table 2: Descriptive statistics

	Country	Mean "PHIL"	Std. Dev 'PHIL"	Mean "Co2"	Std. Dev "Co2"	Mean "GDP"	Std. Dev "GDP"	Mean "HDI"	Std. Dev "HDI"	World bank country classification by income
1.	Angola	3,01	1,70	1,27	0,14	3607,32	171,14	0,54	0,03	Lower-middle
2.	Benin	4,74	2,56	0,55	0,04	1100,93	57,16	0,49	0,02	Lower-middle
3.	Botswana	4,57	4,66	2,61	0,42	7237,11	661,88	0,69	0,03	Lower-middle
4.	Burkina Faso	16,21	5,89	0,16	0,03	350,99	332,38	1,56	1,19	Low
5.	Burundi	1,25	0,90	0,04	0,01	229,99	10,68	0,41	0,02	Low
6.	Cameroon	4,01	2,05	0,31	0,03	1376,11	82,24	0,53	0,03	Lower-middle
7.	Chad	2,31	1,82	0,07	0,01	875,50	56,12	0,39	0,02	Low
8.	Congo, DR	12,83	12,65	0,04	0,01	372,92	35,81	0,43	0,02	Low
9.	Congo, Rep	1,58	0,95	0,57	0,12	2812,02	131,34	0,58	0,03	Lower-middle
10.	Cote d'Ivoire	5,45	3,13	0,39	0,07	1357,46	173,53	0,48	0,03	Lower-middle
11.	Egypt	1,65	1,12	2,49	0,05	2677,10	109,80	0,68	0,01	Lower-middle
12.	Equatorial Guinea	0,03	0,02	6,45	1,54	15843,35	3292,91	0,59	0,00	Upper-middle
13.	Gambia, The	2,00	1,31	0,24	0,02	785,00	35,30	0,45	0,01	Low
14.	Ghana	34,62	10,80	0,51	0,10	1526,96	193,64	0,57	0,02	Lower-middle
15.	Guinea	1,92	1,95	0,24	0,02	747,42	76,10	0,43	0,02	Low
16.	Kenya	70,26	26,13	0,32	0,04	1037,12	96,64	0,55	0,02	Lower-middle
17.	Lesotho	0,36	0,16	1,18	0,07	1276,29	109,72	0,48	0,02	Lower-middle
18.	Liberia	5,15	2,91	0,24	0,06	546,00	31,49	0,46	0,01	Low
19.	Madagascar	2,38	1,54	0,13	0,03	477,77	14,41	0,51	0,01	Low
20.	Malawi	23,33	5,08	0,07	0,00	490,10	22,92	0,46	0,02	Low
21.	Mali	16,23	3,96	0,16	0,03	718,22	32,10	0,41	0,01	Low
22.	Mauritania	1,41	1,80	0,65	0,05	1672,07	39,54	0,51	0,02	Lower-middle
23.	Morocco	0,87	0,86	1,75	0,05	3050,93	210,86	0,64	0,02	Lower-middle
24.	Mozambique	19,30	3,30	0,20	0,08	527,99	54,20	0,41	0,02	Low
25.	Namibia	0,82	0,78	1,57	0,19	5739,76	390,55	0,61	0,03	Upper-middle
26.	Niger	8,34	4,96	0,09	0,02	499,56	30,23	0,34	0,02	Low
27.	Nigeria	134,18	63,62	0,67	0,08	2377,14	143,67	0,51	0,02	Lower-middle
28.	Rwanda	13,84	8,51	0,07	0,01	702,31	89,66	0,50	0,02	Low
29.	Senegal	17,05	8,85	0,24	0,12	1352,13	94,63	0,49	0,02	Lower-middle
30.	Sierra Leone	5,12	3,08	0,14	0,02	457,12	57,78	0,41	0,02	Low
31.	South Africa	28,78	26,02	8,87	0,62	7456,57	102,35	0,68	0,02	Upper-middle
32.	Sudan	1,07	0,60	0,37	0,08	1689,30	177,53	0,49	0,02	Low
33.	Tanzania	61,09	23,23	0,20	0,04	824,45	83,01	0,50	0,02	Lower-middle
34.	Togo	1,04	0,73	0,38	0,05	591,40	57,08	0,49	0,02	Low
35.	Tunisia	0,47	0,50	2,56	0,12	4200,83	140,35	0,72	0,01	Lower-middle
36.	Uganda	50,05	22,06	0,13	0,01	866,16	48,68	0,50	0,02	Low
37.	Zambia	24,37	7,45	0,25	0,05	1563,88	116,22	0,56	0,03	Lower-middle
38.	Zimbabwe	7,94	6,21	0,74	0,14	1113,88	191,01	0,51	0,04	Lower-middle

Notes: Std. Dev. designates standard deviation; PHIL, CO₂, GDP and HDI signify philanthropic flows, per capita CO₂ emissions, GDP per capita and Human Development Index respectively.

Table 3: Pearson correlations

	PHIL	CO ₂	GDP	HDI
PHIL	1			
CO₂	-0.057	1		
GDP	-0.077	0.828*	1	
HDI	0.035	0.606*	0.577*	1

Notes: PHIL, CO₂, GDP and HDI indicate philanthropic flows, per capita CO₂ emissions, GDP per capita and Human Development Index respectively. * represents the statistical significance at the 1% level.

Number of observations: 418

negative effect on philanthropic flows at a 1% level. The size of 15,256 indicated that a 1% increase in carbon emissions decreases philanthropic flows by 1,52%. Thus, as carbon emissions increase, philanthropic flows decrease. This confirmed results of Arvin *et al* (2006), and Kablan (2018) who suggested that foreign aid supports a reduction of carbon dioxide emissions through various channels. The results imply that in instances where aid was assigned to projects in which the preferred source was electricity rather than renewable sources, emissions of carbon dioxide in

Table 4: Cross-Sectional Dependence (CSD) and panel unit root tests

Test Statistics	Levin, Lin & Chu t*	Im, Pesaran and Shin W-stat	ADF - Fisher Chi ²	PP - Fisher Chi ²	Pesaran CD
lnPHIL	-23.222 (0.00)	-12.995 (0.00)	308.278 (0.00)	380.422 (0.00)	19.722 (0.00)
lnCO ₂	-20.318 (0.00)	-11.646 (0.00)	279.420 (0.00)	321.820 (0.00)	22.208 (0.00)
lnGDP	-10.369 (0.00)	-5.372 (0.00)	163.080 (0.00)	200.600 (0.00)	41.412 (0.00)
lnHDI	-10.415 (0.00)	-4.550 (0.00)	152.592 (0.00)	182.683 (0.00)	82.765 (0.00)

Notes: Values contained in parentheses are P-values.

Table 5: Pedroni cointegration results

	Within-dimension (four statistics)				Between-dimension (three statistics)		
	Panel v-statistic	Panel rho-statistic	Panel PP-statistic	Panel ADF-statistic	Group rho-statistic	Group PP-statistic	Group ADF-statistic
Statistic	6.475	-1.046	-16.688	-14.580	5.670	-13.163	-8.573
Prob.	0.000*	0.147	0.000*	0.000*	1.000	0.000*	0.000*

Notes: The null hypothesis of the Pedroni test assesses the absence of cointegration. The lags (automatic) selection is predicated on SIC with a max lag of 2. * signifies the statistical significance at the 1% level.

Table 6: FMOLS and DOLS results.

Panel	PHIL	CO ₂	GDP	HDI
$PHIL = f(CO_2, GDP, HDI)$				
FMOLS	--	-15,256* (5,049)	0,006** (0,003)	223,384* (47,755)
DOLS	--	-9,560** (4,714)	0,003 (0,002)	191,989* (41,217)
$CO_2 = f(PHIL, GDP, HDI)$				
FMOLS	-0,001 (0,000)*	--	0,0004 (4,25e-05)*	-0,340 (0,311)
DOLS	-0,001 (0,000)**	--	0,0004 (4,61e-05)*	-0,723 (0,463)
$GDP = f(PHIL, CO_2, HDI)$				
FMOLS	3,158* (0,980)	1733,348* (195,469)	--	1766,309* (575,944)
DOLS	1,240 (1,291)	1822,692* (233,103)	--	2480,412* (802,511)
$HDI = f(PHIL, CO_2, GDP)$				
FMOLS	0,00047* (0,000)	-0,002 (0,006)	6,63e-06*** (3,55e-06)	--
DOLS	0,00049* (0,000)	-0,0089 (0,008)	7,91e-06** (3,97e-06)	--

Notes: Standard errors are in parentheses. *, ** and *** represent the statistical significance at the 1%, 5% and 10% levels, respectively.

cities could effectively be reduced. Kretschmer, Hübler and Nunnenkamp (2011) and Perkins and Neumayer (2009), however, are more sceptical of the role of foreign inflows in improving carbon emissions and domestic pollution efficiency in general. Additionally, it was established that GDP's effect on philanthropic flows was positive and significant at the 5% level. The 0,006 magnitude inferred that a 1% increase in GDP increased philanthropic flows by approximately 0,6%. This result was parallel with Kablan (2018) who concluded that development assistance allotted to further efficient utilisation of energy in the process of

production, enhances the emissions of carbon dioxide in cities. They attributed this to the alteration in households' behaviour in fuel consumption, resulting out of a wealth effect from increased productivity in a country.

In addition, HDI had a strong positive effect on philanthropic flows at the 1% level of significance. This outcome contradicted Boone (1996) and Okon (2012) who concluded that a negative relationship exists between ODA and HDI, but was in agreement with Burnside and Dollar (2000), and Kargbo and Sen (2014) who noted development has a positive impact on HDI.

Table 7: The panel VECM Granger Causality results.

Dependent Variables	Short-run Source of Causation (Independent variables)				Long-run ECT
	Δ PHIL	Δ CO ₂	Δ GDP	Δ HDI	
Δ PHIL	--	370,032 (349,844)	2,017*** (0,230)	30975,23*** (4799,86)	-0,000087* (0,000)
Δ CO ₂	0,0027 (0,035)	--	0,005*** (0,000)	83,709*** (12,628)	-0,008*** (0,001)
Δ GDP	0,495 (6,562)	183,418* (124,248)	--	15353,89*** (2294,01)	-0,053*** (0,005)
Δ HDI	3,23e-05 (0,00043)	0,011 (0,011)	6,51e-05*** (0,000)	--	-0,0003 (0,002)

Notes: Standard errors are listed in parentheses. *, ** and *** denotes the statistical significance at the 1%, 5% and 10% levels, respectively.

The coefficients from the panel DOLS estimator were -9,560; 0,003, and 191,989 for carbon emissions, GDP, and HDI respectively. The effect of carbon emissions on philanthropic flows was negative and statistically significant at the 5% level. This suggested that a 1% increase in carbon emissions decreased philanthropic flows by approximately 950%. Moreover, the effect of GDP was positive but not significant. HDI exerted a relatively strong and positive effect on philanthropic flows and was statistically significant at the 1% level.

According to the second equation representing the FMOLS estimator, the coefficients were -0,001, 0,0004, and -0,340 for philanthropy, GDP, and HDR respectively. Philanthropic flows had a negative and statistically significant effect on CO₂ emissions at the 1% level. The size of 0,001 inferred a 1% increase in philanthropic flows decreases carbon emissions by 0,1%. Furthermore, GDP possessed a very small, positive and statistically significant effect at the 1% level on carbon emissions, while HDI exhibited a positive and significant effect on carbon emissions. Regarding the DOLS estimator, the coefficients are -0,001, 0,0004, and -0,723 for philanthropic flows, GDP, and HDI respectively. Philanthropic flows exerted a negative and statistically significant effect on carbon emissions at the 5% level. Additionally, the effect of GDP on carbon emissions was relatively small and significant at the 1% level. A magnitude of 0,0004 suggested that a 1% increase in GDP increased carbon emissions by approximately 0,04%. HDI results were negative but insignificant.

Under the FMOLS estimator for the third equation, coefficients were 3,158, 1,733,348, and 1,766,309 for philanthropic flows, carbon emissions, and a HDI respectively. Philanthropy had a positive and statistically significant effect on GDP at the 1% level. The magnitude of 3,158 suggested that a 1% increase in philanthropic flows increased GDP by approximately 0,312%. Both carbon emissions and HDI exerted positive effects on GDP at a 1% significance level. For the DOLS estimator, coefficients were 1,240, 1,822,692, and 2,480,412 for philanthropic flows, carbon emissions, and HDI respectively. Philanthropic flows had a positive and significant effect on GDP, while carbon emissions and HDI exerted relatively strong and positive effects, which were significant at the 1% level.

In the fourth equation, under FMOLS, the coefficients were 0,0004, -0,002, and 0,0006 for philanthropic flows,

carbon emissions, and GDP respectively. Only philanthropic flows affect HDI significantly with a magnitude of 0,0004. This suggested that a 1% increase in philanthropic flows positively affected HDI at a high significance level. Concerning DOLS results, coefficients were 0,004; -0,009, and 0,0007. Philanthropic flows and GDP were positive and significant at the 1% and 5% levels respectively, while the carbon emission coefficient lacked significance.

The results for the long- and short-run VECM Granger Causality test for philanthropic flows and the three distinct pillars of sustainable development are displayed in Table 7.

Cointegration of all variables in the model (1) were ascertained. The VECM with two cointegrating relations and each equation with one lag was estimated. The VECM facilitated modelling of the long-run behaviour displayed by endogenous variables to converge into long-run equilibrium relationships while also considering an assortment of dynamics of the short-run. The ECT specifically measured the speed of adjustment towards long-run equilibrium. Conventional wisdom considered a good range of the coefficient of the error correction term ECT to fall within zero and minus one, but not more than two. In addition, a negative number was sought, as positive values were not considered reasonable and thought of as explosive and thus unreasonable. The ECT values all appeared reasonable and non-explosive. Additionally, they fell within the zero and minus one value range.

The ECT for philanthropic flows possessed the suitable sign and was statistically significant at 1% with a speed of convergence to equilibrium of 0,87% (see Table 7). Thus, in the short-run, philanthropic flows were adjusted by 0,87% of the previous year's deviation from the equilibrium and the stability of the system was confirmed. The low value of the speed indicated slow adjustment towards equilibrium. The coefficient of the ECT of carbon emissions held a negative sign and was statistically significant at the 10% level. This means that divergence from the equilibrium due to any disruption in the system would occur and the system rendered unstable. The coefficient for the ECT of GDP per capita was negative and statistically significant at the 10% level. This implied that the system was stable and moved towards the equilibrium path should any disturbance in the system occur. The larger value of the ECT suggested that restoration to the equilibrium might take a relatively fast

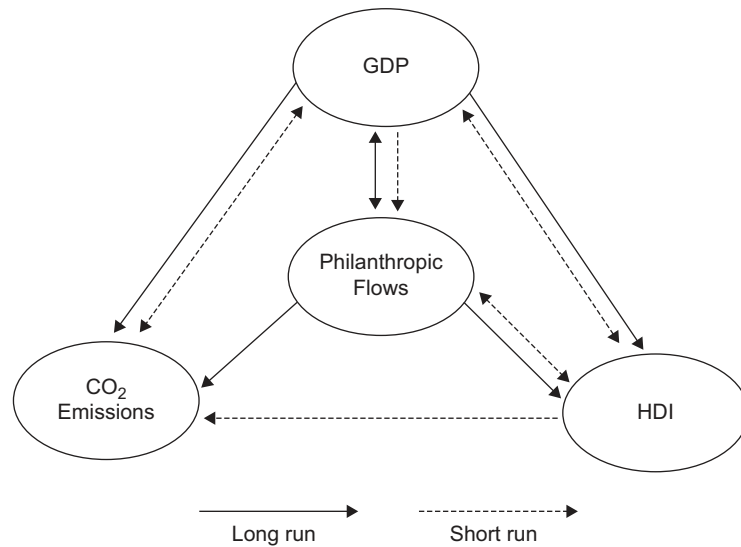


Fig 1: Short-run and long-run causal relationships among variables.
Source: Adapted from Dhahri and Omri (2018)

time to occur. Regarding HDI, the coefficient is negative but lacked significance. The significance of the philanthropic flows, carbon emissions, and GDP coefficients to each other for all the time series indicated that, in the long-run, all variables had causal effects on one another.

These findings are summarized in Figure 1 depicting the unidirectional and bidirectional causalities, in the short- and the long-run, between philanthropic flows (PHIL), economic growth (GDP), human development (HDI) and carbon emissions (CO_2).

For the short-run causality, Figure 1 shows a unidirectional causality running from economic growth to philanthropic flows. This result was consistent with Mahembe and Odhiambo (2019), and suggested that donors primarily considered GDP in their short-term foreign aid allotment decisions. In addition, there was a unidirectional causality running from human development to CO_2 emissions, which meant that education could decrease CO_2 emissions by creating awareness among people. On the other hand, environmental degradation might cause diseases that impair human health. Furthermore, three bidirectional causal relationships were found. First, a bidirectional causality relationship between economic growth and CO_2 emissions indicated that continued deterioration in the environmental quality could impact negatively on the economy by harming the health of citizens and consequently reducing long-run productivity (Lee and Oh, 2015; Dhahri and Omri, 2018). Second, bidirectional causality between economic growth and human development confirmed that human development was not only a product of economic growth, but also an important input (Suri, Boozer, Ranis and Stewart, 2011). Third, a bidirectional relationship between philanthropic flows and human

development aligned with Reiter and Steensma (2010) and Okhuysen, Lepak, Ashcraft, Labianca, Smith and Steensma (2013) who found strong linkages between FDI and human development when they controlled for corruption and when investors were restricted in certain sectors.

For the long-run relationships, Figure 1 also shows the interrelationships among philanthropic flows and the economic, social, and environmental dimensions of sustainable development. There were unidirectional relationships running from economic growth, to CO_2 emissions, to human development. Additionally, unidirectional relationships ran from philanthropic flows, to CO_2 emissions, to human development. These results confirmed that the short-run relationships discussed extend to the long-run relationships. Finally, bidirectional causal relationships between economic growth and philanthropic flows were found.

EMPIRICAL GENERALISATION, THEORETICAL PROPOSITIONS, AND MECHANISM OF CHANGE.

Empirical Generalisation

In summary, from the empirical analysis, the long-run relationships between philanthropic flows and the three dependent variables of SD, as well as the interactive relationships among them; the key points were:

- Increasing international private philanthropic funding led to enhanced economic growth, improved human development, and better environmental quality.
- Increased economic growth improved human development but contributed to environmental degradation thus attracting philanthropic funding. On the other

hand, poor economic growth with corresponding poor human development and high environmental degradation attracted philanthropic funding to address the situation in the long-term.

- Improved human development together with economic growth improved environmental quality.
- Poor environmental quality consistent with low economic growth and poor human development significantly attracted private philanthropic funding
- Economic growth and human development are complementary to each other, but non-complementary to environmental quality.

Theoretical Propositions

From these generalisations the following *post-hoc* propositions were constructed:

- The greater the infusion of private international philanthropic funding the more likely improvements in economic growth, human development and environment quality would be.
- The higher the economic growth, the more likely improvements in human development together with degradation in environmental quality would be.
- The higher the human development, at any level of economic growth, the higher the environmental quality.
- Therefore, the lower the economic growth, and the poorer the states of human development and environmental

quality, the greater the attraction to private international philanthropic funding would be in the long-term. The longer the period of funding by a capable donor, the more adequate the introduction of sustainability resources that accompany philanthropic funding would be to enhance the impact on SD.

The Mechanism of Change Model

It was deduced from the *a priori* propositions that foreign aid infusions were most likely to make the least desirable impacts in developing and least developed countries (with low economic growth, poor human development, and poor environmental quality). However, *post-hoc* propositions, based on the empirical results, showed that private philanthropic cross-border funding made statistically significant and desirable impact on the African sample. The critical realist mechanism of change concept (Pawson and Tilley, 1997) was employed to explain this counter-intuitive outcome. This study's conceptualisation of generative mechanism, consisting of $C+M=O$, where C is context, M is the mechanism and O the outcome, was applied. By disaggregating mechanism into R (resources) and R' (reasoning), a new formula was generated $M(R) + C \rightarrow M(R') = O$.

Using this new formula and Figure 2, it was demonstrated that given the poor operating context of African countries, that is the largely vulnerable marginal living conditions, introducing sustainability resources (economic and

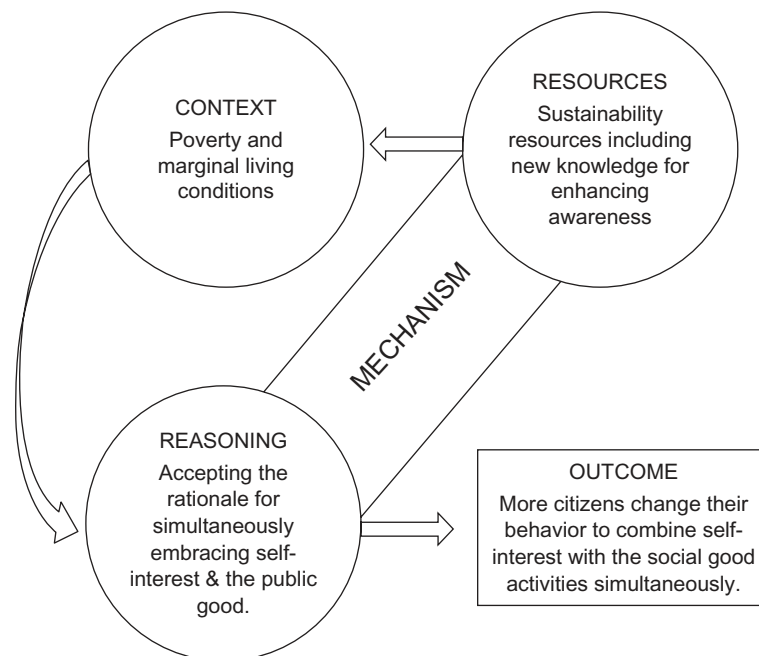


Fig 2: CMOC for African citizens receiving sustainability transition resources..
Source: Adapted from Dalkin, Greenhalgh, Jones, Cunningham and Lhussier (2015)

social incentives, strong regulations, innovative technologies, new knowledge to enhance awareness, among others) into the context, induced individuals' reasoning towards behaviours compatible with the simultaneous pursuit of self-interest and social good. Alternatively, citizens living in such contexts constantly faced a 'prisoner's dilemma' regarding the choice between pursuing environmentally degrading activities with individual rewards and collective sustainability activities for the social good (Dhahri and Omri, 2018).

DISCUSSION

Overall, the results lent considerable support to the argument that private international philanthropic funding significantly improves the three pillars of sustainable development – economic, human and environment – in African countries. This was contrary to the findings of past studies, which observed insignificant and sometimes negative relationships between international aid and the SD variables for developing countries, including several African countries. The findings contributed to the sustainability and international aid literatures in providing an empirical approach that demonstrated the impact of private international philanthropic flows on the three pillars. They showed also that while the economic and social components were positively linked, the environment variable was negatively linked to the other two. This confirms the theoretical assumptions of the sustainability framework that the three pillars are somehow interrelated. It was, however, inconsistent with the finding by Dhahri and Omri (2018), who studied the relationship between entrepreneurship activity and the three pillars of SD for developing countries and found that all three variables interact positively. This study argued that private philanthropic foundations, more than other donors were better able to engage recipient governments to get sustainability resources introduced into pre-existing contexts to improve the impact of their funding. Their relative success derived from their global influence and close-knit networking with a wide range of stakeholders, which included collaborating with the private sector. For example, one of the primary causes of environmental degradation is extensive deforestation. Therefore, measures to address the problem would include co-ordinated rural extension activities aimed at modifying and fine-tuning existing policies and institutions. In such a situation, foundations might use their influence to get policies adjusted at various-tiered governmental levels. Similarly, they might invoke their network relationships with local non-profits and the private sector to get institutional structures modified with the involvement of communities concerned. The ultimate goal is to transform values, norms, and behaviours of community members to reconcile with those of SD.

Regarding the complementary relationship between economic growth and human development, Gries and Naudé (2010), showed that entrepreneurship (economic)

activities not only create direct jobs, and increase productivity, incomes and wealth generation, but also stimulate human capabilities such as self-respect, sense of community belonging, and self-fulfilment, all of which are dimensions of human development. In addition to this indirect impact of economic activities, direct funding of human development such as education, in turn, expands human capabilities for more productive entrepreneurship. For example, direct funding of university education produces graduate entrepreneurs who create goods and services that improve health-care quality at reduced costs (Zumeta, 1996; Itri et al, 2015). The negative relationship between the environment variable and the other two variables might be explained by the finding of Tiba and Omri (2017), that the impact of external funding on environmental pollution is higher in developing countries. They, however, found an inverted U-shaped relationship for developed countries as did Alshubiri and Elheddad (2019), suggesting that most African countries are yet to reach the threshold for positive effects to occur. This study's findings contribute to a wide range of literatures and have implications for policy and management practice as well as for future research directions.

RESEARCH CONTRIBUTIONS

Comparing and contrasting the *a priori* and *post hoc* propositions drew two conclusions. First, Africa's poor SD indicators attract long-term philanthropic funding. Second, foundations collaborate with communities and governments in changing policies, processes, structures, values, and norms of participants in socio-economic and ecological systems (Kramer, 2018), to create system changes. This strategic role of foundations in the introduction of sustainability transition resources into pre-existing contexts of African countries in order to change the reasoning of citizens to be compatible with the goals of SD is conceptualised as the mechanism of change. This resource-based mechanism adds a new perspective to the emerging sustainability transition theories outlined earlier.

In resilience theory, the availability of sustainability transition resources enhances the capacity of actors for self-organisation and innovation at all three levels of the multi-level perspective framework (Walker et al, 2004). In this regard, changes in values, norms, and beliefs in interactions with the natural system, as posited in the behavioural change theory, are better explained. Additionally, the introduction of these resources makes it possible to delink environmental pressure simultaneously from economic growth for decoupling to occur. None of these theories in their original form pays attention to pre-existing contexts and the critical importance of sustainability transition resources as pre-requisites for the transition to sustainability. This study considered these resources as necessary and sufficient conditions, and indeed, mediating variables in the philanthropic funding – SD phenomenon. This has implications

for theory advancement through boundary expansion, problematisation, and new concept development.

This paper has endeavoured to contribute to the literature in several ways. First, the empirical focus on private international philanthropic foundations as a vital and effective source of funding SD adds a fresh perspective to the philanthropy literature and the wider foreign aid effectiveness debate. Second, having taken the first step toward advancing theory about the philanthropic flows – SD phenomenon by offering theoretical propositions together with an underlying mechanism of change, brings new insight to the sustainability debate. Besides, the context-sensitive mechanism proposed informs four theories of transition to sustainability, as outlined prior, for further theory development. These theories are embedded in a wide range of disciplines, including economics, sociology, and psychology, from which further theory advancement could be accomplished. Third, no known previous study has empirically linked philanthropic flows to SD. However, for the first time, the contributions of internationally sourced philanthropic flows to the three pillars of SD were demonstrated. Furthermore, the nature of the linkages among the variables were discovered to be contrary to that suggested by Dhahri and Omri (2018), and explanations were proposed. Fourth, the empirical focus on Africa as a region had no precedence in the philanthropy-SD literature although the continent, among all others, has defaulted most in its SD goals for which investigations are warranted. Ironically, most African countries are lowly developed and foreign aid impact has been an on-going research theme. Above all, the interpretation of the nature of the linkages among the three components of SD rationalises the implications outlined for policy and management practice.

Policy and Managerial Relevance

The findings showed that the environment variable is the odd one among the trio for any degree of complementarity to be achieved. This observation was important because complementarity among all three variables is necessary to achieve overall sustainability. Therefore, it is necessary that greater attention be given to improving cohesion at project level through more strategic donor-recipient interactions to alter government incentives rather than merely building capacity through financial flows (McLean, 2015). Besides, information asymmetry could act as a barrier to more adequate and effective funding. Therefore, better knowledge sharing and information analysis must be considered as a critical sustainability resource in the long term. Furthermore, several policy options to overcome barriers to achieving environmental sustainability need to be pursued more systematically. These include coordination of environmental planning systems at pan-African, national, provincial, and local levels; enforcement of economic incentives or punishment at local levels; incentives for the participation of the private and non-profit sectors; increased technical

capacity and expertise for local implementing agencies; and civic education and other programmes to promote public awareness (Kostka, 2014). These top-down efforts must be combined with bottom-up approaches at local levels to account for local specificities ranging from the lack of funding, equipment, and technical staff, promotion of local innovation, changing locally embedded socio-cultural and behavioural norms including consumer behaviour and production practices. Above all, is refining and adapting international best practices to local needs.

Limitations and Future Directions

In spite of the fresh insight this study adds to the literature, it encompassed limitations that necessitate further consideration in future research. First, the indicators selected for the SD components have other alternatives with merits and could have been chosen (Jabbari *et al.*, 2019; Lyytimaki *et al.*, 2020). Future studies, therefore, might use alternative indicators to see if they will make any difference to the results. Second, the private international philanthropic funding SD phenomenon investigated was more complex than assumed in the empirical analysis. Therefore, there is need to integrate the transition to sustainability theories outlined in this paper, with complexity theory a comprehensive theorisation of the phenomenon. Third, further qualitative and quantitative studies will be required to examine the moderating/mediating role of sustainability resources for their effectiveness. Fourth, the mechanism of behavioural change proposed could be refined and adapted to the conditions in developing countries broadly and Africa in particular. Fifth, this study relied solely on secondary data to generate its analysis, findings, and conclusions. Its theoretical contributions, however, could be validated and practical recommendations refined through comparative, qualitative in-depth case studies of selected countries. Particularly important is validation of the theoretical explanations of the pattern of impact and interactions among the four variables encountered in this study. Finally, there is need for comparative studies of the impacts of private versus public philanthropic funding sources on SD.

CONCLUSION

Private international philanthropic funding is emerging as a viable source of financing SD as compared to other sources. Yet, its impacts on the pillars of SD as well as the linkages among the variables are unclear. These gaps were addressed in this study, with particular reference to 42 African countries over the period 2006 to 2018. The empirical study, based on FMOLS, DOLS and VECM techniques of causality, offered unique and interesting findings. First, philanthropic funding significantly improves all three components of SD in Africa, unlike other forms of international aid. Second, findings confirm long-run interactions among all three with the economic and social variables

positively linked in a complementary fashion. The environment variable, however, relates negatively to the other two. This confirms that the challenges of SD in developing countries, including Africa, is analogous to a prisoners' dilemma problem about individuals, organisations, and communities impelled to choose between environmentally degrading behaviour that comes with individual rewards, and collective sustainability goals that offer the social good. The study argued that introducing sustainability transition resources into pre-existing contexts to bring about positive behavioural changes will bring Africa and, indeed, similar developing countries, much closer to achieving its SD goals. Alongside these insights, this paper contributes to theory advancement with implications for policy and management practice.

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