world

Article

An Economic and Social Impact of International Aid at National Level: Application of Spatial Panel Model

Danbi Chung [1] and Jaehee Hwang [2,*]

[1] Department of Economics, Seoul National University, Seoul 08826, Korea
[2] Ocean Economy Strategy Department, Korea Maritime Institute, Busan 49111, Korea
* Correspondence: me.jaehee@gmail.com

Abstract: This study identifies how aid has contributed to economic and social development in recipient African countries. Spatial panel models were employed for the analysis, considering spatial autocorrelation of panel data between 42 countries and nine years from 2005 to 2013. Based on the regression results, the aid itself had a weak impact on recipients' GDP per capita and Human Development Index. On the other hand, according to the interaction term, aid promoted economic and social development along with affirmative government efficiency. The efficient and centralized administrative system and civic accountability also improved the aggregated well-being level in Africa.

Keywords: international development aid; aid effectiveness; human development; spatial panel model; Africa

check for updates

Citation: Chung, D.; Hwang, J. An Economic and Social Impact of International Aid at National Level: Application of Spatial Panel Model. *World* **2022**, *3*, 575–585. https://doi.org/10.3390/world3030031

Academic Editor: Jungho Baek

Received: 27 May 2022
Accepted: 1 August 2022
Published: 12 August 2022

1. Introduction

International development aid has been designed to promote the economic development and welfare of the recipient countries. Meanwhile, official development assistance (hereafter 'ODA'), an indicator of the aid flow, has increased steadily and renewed its record, reaching USD 152.8 billion in 2019 [1]. Robust empirical studies have shown a positive effect of the funds on economic growth and poverty reduction in the recipients [2–7]. In this context, Gomanee et al. [8] argue that the increase in 1%p of the aid/GNP ratio generates a 0.25%p increase in GNP growth in Sub-Saharan Africa. However, there is still an ongoing debate regarding the effectiveness of ODA on the standard of living as individual welfare [9–14]. Although considerable studies have experimented on ODA in a wide range of topics, variables, and methods, little research has been conducted to demonstrate how ODA works on economic achievement and welfare status. In particular, with a massive wave of the 17 transition-related Sustainable Development Goals (SDGs), it should also be measured in terms of both economic and social aspects. This study identifies the aggregated effectiveness of ODA on economic and social achievements at the national level. In particular, this study evaluates whether government-level ODA has an economic and social impact even when controlling the effect of spatial proximity between African countries. It could contribute to the ODA strategy with the spatial effects affecting economic growth and social change in recipient African countries. In the analysis, gross domestic product (GDP) represents the aggregated economy size at the national level, and the Human Development Index (HDI) measures social development. The paper is structured as follows. Section 2 provides a literature review on the effectiveness and contribution of ODA. Section 3 explains the method and dataset for used the analysis. The empirical results are depicted in Section 4, including the spatial autocorrelation and economic and human development models. Finally, Section 5 suggests implications and a discussion.

2. Literature Review

Economic growth is the dominant way to achieve demographic and socioeconomic development. In particular, for underdeveloped or developing countries, economic growth has been used as a trigger to stimulate various aspects of social development [2]. ODA has also concentrated economic development in line with the immediacies of everyday living. In recent decades, welfare and poverty have emerged as essential subjects in official development assistance [15]. Substantial studies have remarked on enhancing human development as a living standard to achieve sustainable growth and reduce poverty. In Ranis et al. [16], the relationship between economic growth and human development shows a significant relationship based on variables such as public expenditure on health and education, investment rate, and income distribution. Ogundipe and Ogundipe [17] support the importance of human development, because human capital enhances economic performance even when the ODA fails to contribute to economic growth. It argues that ODA could affect economic growth indirectly even if ODA fails to influence economic growth directly. Gomanee et al. [8] found evidence that ODA alleviates poverty and infant mortality. They examined human development as fostering the effect of ODA, and vice versa.

From both economic and social development viewpoints, the effectiveness of ODA is questioned in diverse empirical studies. There are three main streams of ODA impacts: ODA is effective; ODA is restrictive; ODA is ineffective. First, studies identifying ODA's positive effect find evidence in generating economic development [2]. Dalgaard et al. [3] showed that ODA inflows have significantly promoted productivity in the long run and spurred growth. Lowley and Sackey [5] noted that ODA increases investment and per capita income growth. McGillivray [4] agreed with the growth effects and supplemented that poverty would be higher in the absence of ODA. According to their study, economic growth and poverty reduction have a positive relationship with ODA and explain the preference of LDCs for ODA. Shirazi et al. [6] tested the relationship between ODA and economic growth using a vector error correction model. The findings support ODA as a Granger cause of economic growth. The indices relevant to human development also indirectly show the Granger causality.

Another position regarding the effectiveness argues that ODA could only generate positive achievements under particular conditions. Some findings prove that sufficient policy and governance are the critical factors in making it effective [18,19]. Furthermore, Gillanders [12] showed that well-organized economic policies and institutions boost the positive economic achievement of ODA. Burnside and Dollar [20] also support this idea, by defining good economic policies, including openness, monetary, and fiscal policy. Kosack [21] investigated aid effectiveness in different political situations and concluded that democracies help ODA promote economic growth. Goldsmith [22] found that the level of democracy in recipient countries affects the impact of ODA on GNP up to a 10%p increase.

Others have argued the ineffectiveness of ODA, especially in specific geographical settings [2,17,23]. Easterly [24–26] pointed out that ODA projects have not influenced the growth of African recipient countries. Booth [27] added an empirical result about the weak contribution of ODA on institution development in recipients. Doucouliagos and Paldam [28–30] denoted ODA's long-term negative economic consequences, with unexpected results from its initial purpose. The debate on its effectiveness is controversial. This is possibly because every ODA project has its specific purpose and context [18]. Gillanders [12] also argued that some negative responses could gradually mitigate the early success of ODA. Further remarks on aid effectiveness could depend on the data or methodologies [28].

Development effectiveness has emerged as a global agenda beyond the debate on aid effectiveness [31,32]. Recent empirical studies focused on the non-economic impacts of ODA from a perspective of its development effectiveness. The ODA impact on social infrastructure and services has been widely investigated, including population, education, health, gender, sanitation, and civil society sectors [10,11,13,33,34]. Furthermore, a growing

number of studies have shown the impact of ODA on human development. For example, the impact on economic or social indicators at the national level varies by the composition of ODA, which includes the productive and social sector and humanitarian aid. There is also a difference in the temporal range of generating actual changes. Hammarstrand and Sundsmyr [14] found a positive correlation between human development and ODA. Even though the effect of ODA varies in the types of aid and the time lags, the overall effect of aid on the human development level has been positive in the long term. Gillanders [12] indicated that the level of human development responds slightly but positively to aid, and the magnitude is much larger with suitable institutional environments. Akinkugbe and Yinusa [11] found that technical assistance improves human welfare. They pointed out that when the assistance is improperly allocated to an unproductive sector, such as government expenditures, it would lead to little or negative effects on human development. On the other hand, Azarnert [9] posited the opposite opinion about aid and human development. They argued about a low-equilibrium poverty trap, in which humanitarian aid increases the fertility rate, reduces human capital investment, and locks the recipient's economy into the poverty trap.

This study aimed to demonstrate the effect of aid in the economic and social sectors through empirical analysis. Unlike previous studies, it analyzes both the economic and social impact of ODA from a perspective of development effectiveness at the national level. The hypothesis of this study is twofold (Figure 1). Based on the literature reviewed above, the study sets the first hypothesis that international aid contributes to improving economic performance. Second, this study assumes that international aid leads to social development, especially human development, which is measurable by the HDI. To demonstrate the hypotheses, this study establishes three primary empirical settings. One is a spatial correlation with neighboring countries that affect the socioeconomic indicators of the country, one is a time lag that affects the change of the indicators over time, and the other is two different regression models. Section 3 covers the methods and data to address these empirical issues.

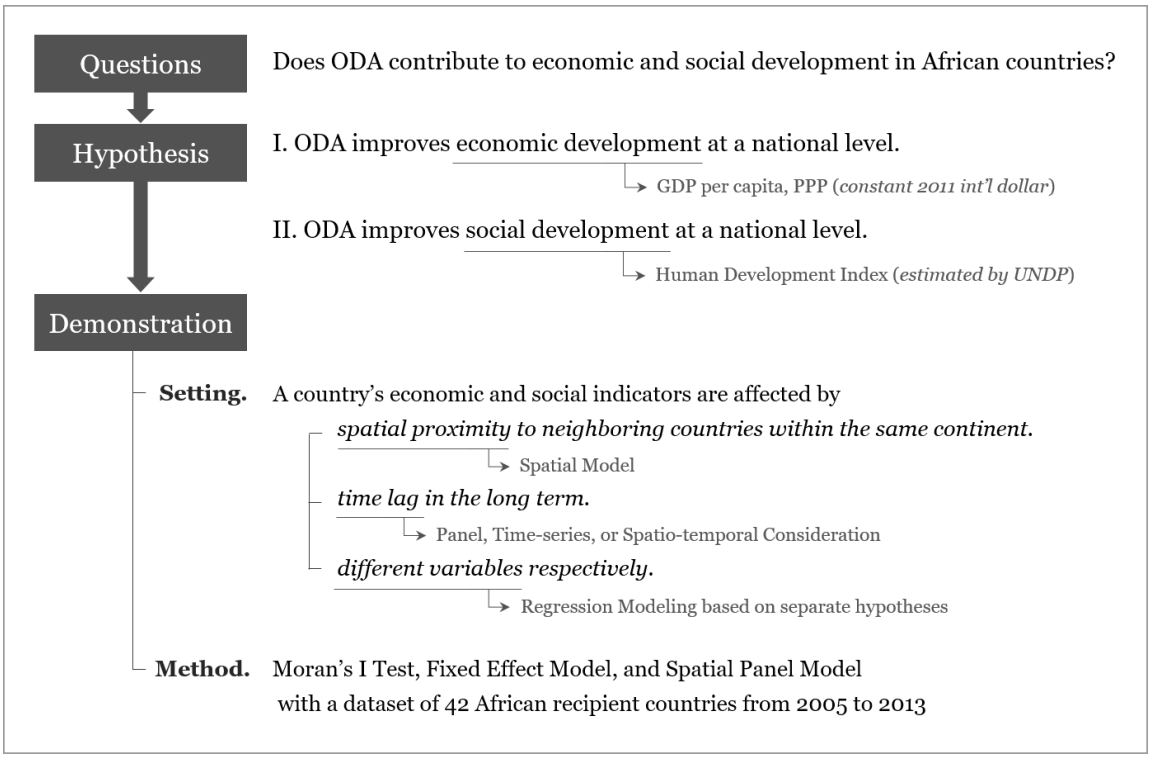

Figure 1. Empirical framework of this study.

3. Materials and Methods

3.1. Methods

The development of a region is intimately related to that of the surrounding regions. The same logic holds for developing countries [35,36]. Based on the statistical verification of spatial autocorrelation, this study investigated economic and human development determinants using panel data from 42 African countries with the spatial econometrics model suggested by Anselin [37] and LeSage [38]. The data at hand were for 42 countries over nine years (i.e., panel data); therefore, a spatial panel data model was adopted. In addition to the literature on the spatial effect of economic and social development, because the target countries in the same continent were adjoining each other, as illustrated in Section 3.2, the k-nearest neighborhood method was selected to form the spatial weight matrix ($\boldsymbol{W}$) in the regression model. This study applied three different spatial panel models: spatial autoregressive regression (SAR), described in Equation (1); a spatial error model (SEM), described in Equation (2); and a spatial general model (SAC), described in Equation (3). The three models diverge on the spatial lag term along with the spatial weights.

$$\boldsymbol{y} = \rho \boldsymbol{W}\boldsymbol{y} + \boldsymbol{X}\boldsymbol{\beta} + \boldsymbol{\mu} + \boldsymbol{\varepsilon} \text{ where } \boldsymbol{\varepsilon} \sim N\left(0, \sigma^2 \boldsymbol{I}\right) \tag{1}$$

$$\boldsymbol{y} = \boldsymbol{X}\boldsymbol{\beta} + \boldsymbol{\mu} + \boldsymbol{u},\ \boldsymbol{u} = \lambda \boldsymbol{W}\boldsymbol{u} + \boldsymbol{\varepsilon} \text{ where } \boldsymbol{\varepsilon} \sim N\left(0, \sigma^2 \boldsymbol{I}\right) \tag{2}$$

$$\boldsymbol{y} = \rho \boldsymbol{W}\boldsymbol{y} + \boldsymbol{X}\boldsymbol{\beta} + \boldsymbol{\mu} + \mathbf{u},\ \boldsymbol{u} = \lambda \boldsymbol{W}\boldsymbol{u} + \boldsymbol{\varepsilon} \text{ where } \boldsymbol{\varepsilon} \sim N\left(0, \sigma^2 \boldsymbol{I}\right) \tag{3}$$

The $\boldsymbol{W}$ in Equations (1)–(3) is the spatial weight matrix constructed by the four-nearest neighborhood method based on visual evidence and simulations. There were 42 countries of interest; therefore, the $\boldsymbol{W}$ was 42 × 42 matrices and was computed as follows. First, the 42 countries were sorted alphabetically and set as rows and columns for $\boldsymbol{W}$. Each of the 42 rows listed the four countries most adjacent to it, and 1 was entered to the corresponding column of the corresponding row. In this way, every row of $\boldsymbol{W}$ had four elements of 1, and all the other elements were assigned 0. Finally, row standardization is applied to normalize $\boldsymbol{W}$ so that the sum of all elements in each row became 1.

3.2. Data and Variables

Africa remains the last continent where the inflows of development aid exceed that of private capital [39,40]; therefore, the empirical results could give us practical implications regarding the future direction of huge ODA flows into Africa. Moreover, the economic growth of Africa does not seem to elevate the well-being status of the residents [41]. This study helps identify the factors ODA should consider to promote the living standards in African countries. The empirical analysis focused on 42 African recipient countries. Among the 61 countries on the African continent, 19 countries, including Somalia, Western Sahara, and small islands, were excluded from the analysis due to significant missing values of data (see Figure 2).

The analysis utilized spatial panel models considering strong geographical autocorrelations among African countries [42–44]. The data capture a country's economic, political, and social features, which could influence the economic and social development at the national level. For the consistency and credibility of data, Table 1 solely relies on official data published by international organizations. Specifically, we mainly collected data from the World Development Index (WDI) and Worldwide Governance Indicators (WGIs) provided by The World Bank (Table 1). All the variables were collected over nine years: 2005–2013 for GDP and HDI, and 2004–2012 for explanatory variables. A one-year difference between the dependent and explanatory variables reflects the time lag. Considering the dependent variables, it could be crucial to secure a sufficient size of time lag longer than one year. However, due to attributes on panel data combining the African recipients' cross-sectional and time-series data, it was difficult to set a sufficient time lag with statistical requirements.

Additionally, all explanatory variables were mean-normalized and feature-scaled because their ranges were considerably different.

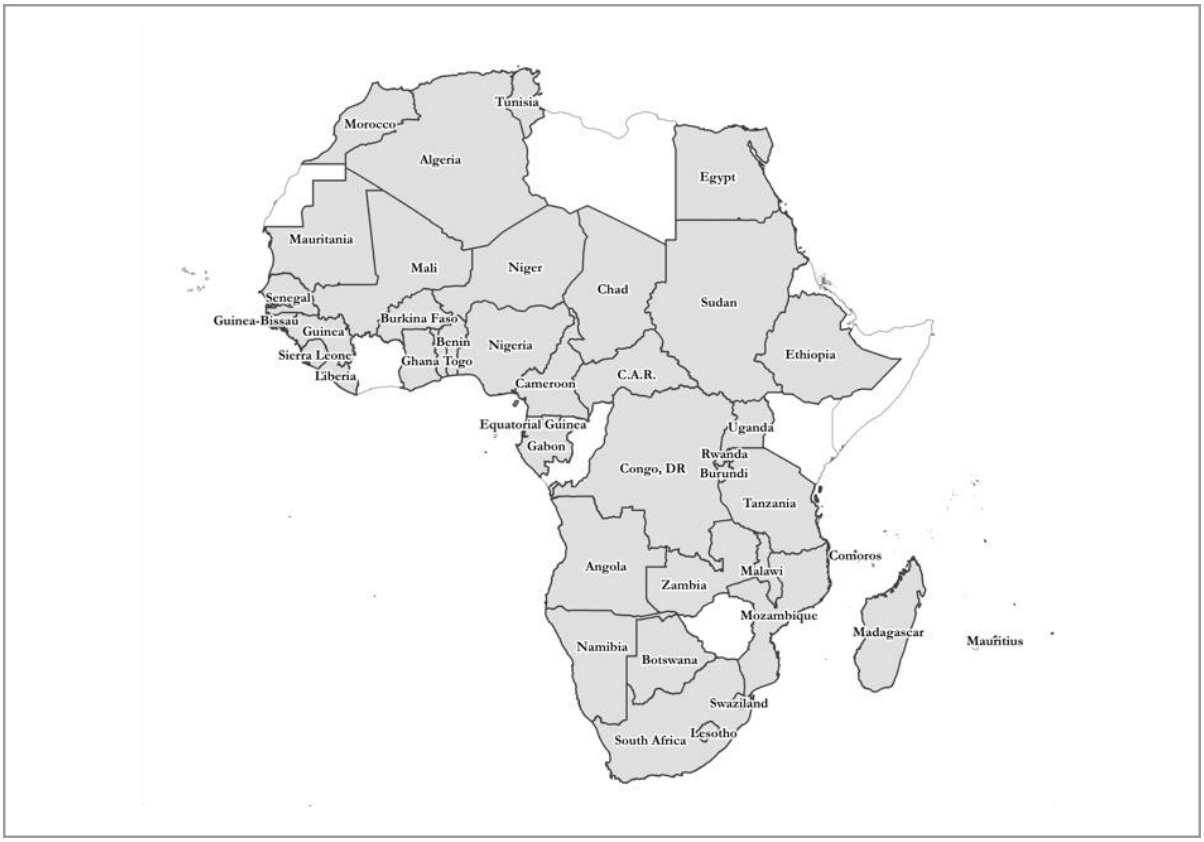

Figure 2. Distribution of target countries (observations).

Table 1. Variables for Regression Models 1 and 2.

Variables			Description (Scale)	Source [2]
D [1]	Model 1	GDP	GDP per capita, PPP (constant 2011 international dollar)	WDI
	Model 2	HDI	Human Development Index, (income index × life expectancy index × education index)^(1/3)	UNDP
IN [1]	Model 1 and 2	ODA	Net ODA received per capita (current USD)	WDI
		O × GOV	Interaction term of Net ODA received per capita and government efficiencies index	-
		GOV	Government efficiencies index (estimate)	WGI
		POLITY	Revised combined polity score (estimate)	Polity IV
		HEAL	Health expenditure per capita, PPP (constant 2011 international dollar)	WDI
		POP	Population, total (log)	WDI
		GDP-G	GDP growth (annual%)	WDI
		EXP	Export value index (2000 = 100)	WDI
	Model 1	FDI	Foreign direct investment, net inflows (BoP, current USD)	WDI
	Model 2	GDP-C	GDP per capita, PPP (constant 2011 international dollar)	WDI
		VOICE	Voice and accountability (estimate)	WGI
		NET	Individuals using the Internet (%)	ITU

[1] D denotes the dependent variables for each model and IN denotes the independent variables. [2] WDIs: World Development Indicators (The World Bank); UNDP: United Nations Development Programme; WGIs: World Governance Indicators (The World Bank); Polity IV: Political Regime Characteristics and Transitions (Monty G. Marshall); ITU: International Telecommunication Union.

There are two regression models in this paper: one with GDP per capita was the dependent variable, and the other concerned the HDI. The GDP per capita, published annually in the WDIs, is a quantitative measure of the degree of economic growth [45]. For the last few decades, ODA projects have mainly aimed to assist in GDP growth, believing that economic growth is the most effective way to eradicate poverty. However, because GDP per capita is limited in capturing diverse aspects of individual welfare, relying solely on a GDP-oriented approach in ODA efforts might not be recommended.

In light of the above discussion, it would be meaningful to find an alternative index that can serve as a useful complement to represent the overall level of qualitative development of a country. The HDI, reported annually by the United Nations Development Program (UNDP), is computed as the geometric average of GNI per capita, life expectancy, and education. In other words, it is instead focused on the potential capacity of qualitative growth, which makes it widely recognized as a measure of the development of human resources and living standards for sustainable development, especially in the case of developing countries [8].

The explanatory variables of the models are broadly classified into macro, economic, political, and social categories. In particular, the ODA per capita variable is included to verify the current ODA's effectiveness in improving the recipient countries' GDP and HDI levels. The government efficiency variable and its interaction term with ODA per capita variable are added because the effect of ODA should be closely related to the effectiveness and transparency of the recipients' administration system [12]. In this context, we also included the polity variable published by Polity IV, which is calculated as an estimated coefficient of the overall political environment and governance. Relevant to the political feature, the civil societal features are also expected to influence the processes in which ODA leads to development, especially at the micro-level [34]. Therefore, two other variables were controlled in the HDI regression to clarify the determinants of qualitative growth: voice and accountability level, and internet access rate.

4. Results

4.1. Spatial Autocorrelation

To measure spatial autocorrelation, Global Moran's I was applied to the dependent variables, GDP per capita and HDI each year. The GDP per capita of the 42 countries does not show the spatial autocorrelation among them, as is implied by the non-significant Global Moran's I coefficient for every year. Previous studies have shown that the economic growth rate is spatially correlated with neighboring countries [42–44]. However, for the mostly under-developed or developing recipient countries, the size of the aggregated economic scale seems to depend on the independent characteristics of each country, such as policies, institutions, and culture, rather than spatial relationships. We obtained a positive Global Moran's I coefficient from the cross-sectional HDI data for nine years. This indicated that the high or low values of HDI were spatially clustered, with positive spatial autocorrelation between 42 countries. These results provide a statistical ground for this study to rely on the spatial panel model to analyze the relationship between social development and ODA (Table 2).

Table 2. Testing results of Global Moran's I.

Description		2005	2006	2007	2008	2009	2010	2011	2012	2013
GDP	Moran's I	0.0366	0.0377	0.0383	0.0394	0.0402	0.0401	0.0407	0.0409	0.0409
	p-value	0.4242	0.3840	0.3628	0.3253	0.3013	0.3046	0.2879	0.2822	0.2814
HDI	Moran's I	0.1844	0.1792	0.1835	0.1851	0.1839	0.1886	0.1896	0.1832	0.1826
	p-value	0.0256	0.0295	0.0261	0.0251	0.0259	0.0228	0.0222	0.0265	0.0269

Note: The null hypothesis indicates that the data are not spatially auto-correlated.

Furthermore, the result of a Hausman test justifies using a fixed effects model with $p < 0.01$. This study conducted a test to clarify whether the fixed model was appropriate for the data at hand. Two regression models rejected the null hypothesis with $p < 0.01$. Additionally, it is generally recommended to prefer a fixed effects model when dealing with spatially correlated data [46].

4.2. Economic Development

The result of the fixed effects panel regression for the GDP model described the five variables which were statistically significant, controlling the divergent effect of population: polity, government efficiency, government efficiency × ODA per capita, health expenditure, and export (refer to Table 3). Notably, statistically significant relationships between ODA and economic achievement should not be found in the model. This describes that the implemented ODA projects do not seem to improve the quantitative economic scale of African countries in general. Multiple factors should contribute to this result, some of which might be a moral hazard to recipient countries and the misoriented nature of traditional ODA [5,47].

Table 3. Summary of regression results.

Variables	Model 1			Model 2			
	Fixed Effects		VIF	Fixed Effects		SAC	VIF
ODA	−0.0035		1.26	0.0026		0.0016	1.30
O * GOV	0.0128	***	1.05	0.0034		0.0028 *	1.18
GOV	0.0547	***	1.84	0.0245	**	0.0219 ***	3.53
POLITY	0.0565	***	1.19	−0.0373	***	−0.0350 ***	3.82
VOICE	-		-	0.0347	***	0.0329 ***	5.88
NET	-		-	0.0091	**	0.0052	1.57
HEAL	0.0459	***	1.97	0.0332	***	0.0246 ***	4.64
POP	0.9811	***	1.67	0.9188	***	0.5232 ***	1.30
GDP-G	0.0017		1.06	0.0014		0.0017	1.13
GDP-C	-		-	0.2288	***	0.1703 ***	4.92
EXP	0.0209	***	1.18	−0.0003		0.0030	1.18
FDI	0.0067		1.65	-		-	-
Adj. R-Squared	0.5798		-	0.8567		-	-
Spatialautoregressiveparameter($\boldsymbol{\rho}$)				-		0.3757 ***	-
Spatialerrorparameter($\breve{}$)				-		0.4164 **	-

Note: * denotes the significance level: * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

On the other hand, a positive effect of government efficiency on GDP per capita implies that the efficiency of the administrative process boosts the outcome of development efforts. Moreover, government efficiency is closely related to the recipient countries' capability to manage ODA funds, explaining the positive interaction between government efficiency and ODA per capita. Regarding the government efficiency issue, it is notable that encouraging recipient countries' commitment to their development is necessary to avoid the Samaritan dilemma [48]. As Park [48] noted, it is reasonable for the recipient countries to put little of their effort into developing the country. This is because donor countries' dominant strategies assist no matter whether recipient countries take responsibility. This had been a cause of failure of ODA in tackling poverty in the 20th century, and the subsequent emergence of the aid efficiency debate. The polity variable has also contributed to increasing GDP per capita, ascertaining the general positive effect of sound governance on individual economic well-being. The historical discussions on modernization by former scholars such as Lipset [49], Huntington [50], O'Donnell [51–54], Huntington and Nelson [55], and Przeworski and Limongi [56] supports the detailed discussion about the result. The coefficient of FDI variable is also not statistically significant in any conventional level. Although FDI is widely presumed to be one of the driving forces of financial sector development, especially in developing countries, it could be interpreted that there is weak evidence that

FDI has practically enhanced individual income levels. Nevertheless, the result may differ according to the specific time lag.

4.3. Improvement of Human Development Status

For the HDI model, a spatial general model (hereafter 'SAC') was exploited based on the need for spatial autoregressive terms and homogeneous institutional customs in the error terms. Table 3 in Section 4.2. summarizes the result of the HDI regression with the SAC model, and the result of the fixed effects model is also provided for comparison. The coefficients of the two spatial lag terms are all positive and statistically significant, confirming the positive spatial dependence among the HDI data of the 42 African recipient countries. In other words, the high or low values of HDI data and the residuals in HDI regression are spatially clustered. We could obtain statistically significant coefficients for control variables for the interaction term of government efficiency and ODA per capita, government efficiency, polity, voice and accountability, health expenditure, population, and GDP per capita.

The ODA per capita variable showed a non-significant relationship with the HDI, similarly to the GDP model. It indicates that ODA itself has weak evidence of having enhanced the quantitative economic development and the qualitative living standards for sustainable development in Africa. The result suspects the effectiveness of the conventional ODA in improving diverse aspects of living standards.

However, government efficiency and its interaction with ODA per capita appear to be positively correlated with HDI, as in the GDP regression. It can be interpreted that government efficiency plays a statistically significant role in that the scale of ODA elevates the level of HDI. The prior discussion about the Samaritan dilemma between donor and recipient countries also holds in this case. For ODA projects to successfully contribute to developing countries' quantitative and qualitative growth, they should be committed to their development, which is represented here as government efficiency [34]. Assessing the results of O*GOV in the SAC model, the coefficient of the interaction term is smaller than GOV due to the influence of the ODA variable. Unlike HDI, which is increased by 2.19% when the government efficiency is improved by one unit, HDI is increased by 0.28%, combining government efficiency and ODA per capita. Despite this tenfold decrease, analysis results with statistical significance still show that ODA can substantially contribute to national social development with the recipient's efficient administration.

Interestingly, the polity variable negatively affects the HDI level, whereas the voice and accountability variable positively affects the HDI. The result might imply that concerning the qualitative living standards, more acceptable and micro-level changes are rather more crucial than broad nationwide concepts such as governance structure [57]. This is in accordance with the fact that the coefficient of the internet access rate variable is also positive. These positive features could represent the future possibility of promoting civil participation in recipient countries, thereby raising the possibility of improving social development at the national level. These results also suggest that social achievements such as human development can be strengthened when the political system is efficient and the basis for civic engagement or freedom of speech is secured.

A positive relationship between health expenditure and HDI was observed. More significant health expenditure would improve life expectancy—a component of the HDI—and promote the well-being of general living standards, because health is fundamental to sustainable and prosperous living for humans [58]. The population variable shows similarly a positive direction to the HDI, but interpreting this correlation as causation might not be reasonable. A large population forms a greater labor force, which might increase the probability of achieving economic prosperity. This would expand the average income level, thereby widening the opportunity to access individuals' general health and medical services. However, in the long run, it is unlikely to expect that a large population would lead to a high HDI level by enhancing the ability of governments to organize and manage administrative affairs.

GDP per capita positively affects the HDI level as expected, mainly for two reasons. First, GDP per capita is one of the representations of the individual income level of a country, so it has a positive correlation with the GNI per capita index, which is a component of HDI. Additionally, the quantitative and qualitative living standards tend to develop with each other, because it is difficult to expect a country to have a high income level and low human resources and living standards, or vice versa. On the other hand, export and GDP growth variables are not statistically significant in the HDI. The result implies that the improvements in human development in African recipient countries should be different from the development path of Asian countries, which were driven by export-oriented and speed-oriented growth strategies.

5. Conclusions

This study attempted to identify the impact of ODA on the economic and welfare level in recipient countries. The focus of this paper was twofold: the first objective was to investigate the effectiveness of ODA on economic development in African countries; the second objective was to examine the determinants of human development levels as a living standard of the countries. To demonstrate the research hypotheses, this study evaluated whether ODA inputs at the government level generated economic and social impacts even when the influence of spatial proximity between countries was controlled. The spatial panel model was applied, considering spatial autocorrelation in African countries' socioeconomic development. On the other hand, some limitations arose because the scope of the study covered the economic and non-economic impact of ODA with a national dataset and spatial effects. For example, it omitted thorough consideration of the regional range of ODA, such as supranational or sub-national effects, and the nature of ODA, such as the type, field, and donor.

The results of both regression analyses present a weak impact of ODA itself on recipients' economic and social development. However, the interaction term between ODA per capita and government efficiency positively impacted GDP per capita as well as human development, with statistical significance. This could confirm the empirical results that ODA funds contribute to quantitative and qualitative development in line with affirmative government efficiency. The variable regarding government structure also supports this finding. Moreover, it could be interpreted that the unified and efficient administrative system elevates the possibility of HDI improvement, which enhances the development effectiveness and capacity of African countries. It implies the importance of condensed and transparent ODA delivery systems. Further studies should be carried out to scrutinize this relationship and relevant determinants to self-sustainable growth for recipient countries.

Author Contributions: Conceptualization, J.H.; methodology, D.C.; software, D.C.; validation, D.C. and J.H.; formal analysis, D.C.; investigation, D.C.; resources, D.C.; data curation, D.C.; writing—original draft preparation, D.C. and J.H.; writing—review and editing, J.H.; visualization, J.H.; supervision, J.H.; project administration, J.H. All authors have read and agreed to the published version of the manuscript.

Funding: This research received no external funding.

Informed Consent Statement: Not applicable.

Data Availability Statement: Not applicable.

Conflicts of Interest: The authors declare no conflict of interest.

References

1. OECD, Net ODA (Indicator). Available online: https://doi.org/10.1787/33346549-En (accessed on 1 July 2021).
2. Hansen, H.; Tarp, F. *Aid and Growth Regressions, CREDIT Research Paper, No. 00/7*; The University of Nottingham, Centre for Research in Economic Development and International Trade (CREDIT): Nottingham, UK, 2000.
3. Dalgaard, C.J.; Hansen, H.; Tarp, F. On The Empirics of Foreign Aid and Growth. *Econ. J.* **2004**, *114*, 191–216. [CrossRef]
4. Mcgillivray, M. *Is Aid Effective?* WIDER: Helsinki, Finland, 2004; Available online: http:/www.oecd.org/dev/34353462.pdf (accessed on 1 July 2021).

5. Lowley, J.; Sackey, H.A. *Aid Effectiveness in Africa*; African Development Bank: Abidjan, Ivory Coast, 2008; pp. 163–199.
6. Shirazi, N.S.; Abdul, M.; Ali, M. Effectiveness of Foreign Aid and Human Development. *Pak. Dev. Rev.* **2008**, *48*, 853–862.
7. Kaya, O.; Ksya, I.; Gunter, L. Development Aid to Agriculture and Economic Growth. *Rev. Dev. Econ.* **2012**, *16*, 230–242. [CrossRef]
8. Gomanee, K.; Girma, S.; Morrissey, O. Aid, Public Spending and Human Welfare: Evidence from Quantile Regressions. *J. Int. Dev.* **2005**, *17*, 299–309. [CrossRef]
9. Azarnert, L.V. Foreign Aid, Fertility and Human Capital Accumulation. *Economica* **2008**, *75*, 766–781. [CrossRef]
10. Moe, T.L. An Empirical Investigation of Relationships between Official Development Assistance (ODA) and Human and Educational Development. *Int. J. Soc. Econ.* **2008**, *35*, 202–221.
11. Akinkugbe, O.; Yinusa, O. ODA and Human Development in Sub-Saharan Africa: Evidence from Panel Data. In Proceedings of the 14th Annual Conference On Econometric Modelling for Africa organised by African Econometrics Society, Abuja, Nigeria, 8–10 July 2009.
12. Gillanders, R. *The Effect of Foreign Aid in Sub-Saharan Africa, Working Paper Series/UCD Centre for Economic Research*; University College Dublin, School of Economics: Dublin, Ireland, 2011.
13. Hsu, J.; Pitt, C.; Greco, G.; Berman, P.; Mills, A. Countdown to 2015: Changes in Official Development Assistance to Maternal, Newborn and Child Health in 2009–2010, and Assessment of Progress Since 2003. 29 September 2012. Available online: https://doi.org/10.1016/S0140-6736(12)61415-9 (accessed on 18 February 2021).
14. Hammarstrand, L.; Sundsmyr, S. Aid Effectiveness on Living Standards: How Does Aid Affect Human Development Index (HDI) In Sub-Saharan Africa? Bachelor's Thesis, University of Guthenburg School of Business, Economics and Law, Göteborg, Sweden, 2013.
15. Tarp, F. Aid and development. *Swed. Econ. Policy Rev.* **2006**, *13*, 9–61.
16. Ranis, G.; Stewart, F.; Ramirez, A. Economic Growth and Human Development. *World Dev.* **2000**, *28*, 197–219. [CrossRef]
17. Ogundipe, A.; Ogundipe, O. Is Aid Really Dead? Evidences from Sub-Saharan Africa. *Int. J. Humanit. Soc. Sci.* **2014**, *4*, 1–16.
18. Njinkeu, D.; Mwabu, G.; Rwegasira, D.; Gesami, R. *A Strategic Framework for Using Japanese Official Development Assistance in Sub-Saharan Africa*; African Economic Research Consortium and University of Nairobi: Nairobi, Kenya, 2002.
19. Bourguignon, F.; Sundberg, M. Is Foreign Aid Helping? Aid Effectiveness: Opening black box. *Am. Econ. Rev.* **2007**, *97*, 316–321. [CrossRef]
20. Burnside, C.; Dollar, D. Aid, Policies, and Growth. *Am. Econ. Rev.* **2000**, *90*, 847–868. [CrossRef]
21. Kosack, S. Effective Aid: How Democracy Allows Development Aid to Improve the Quality of Life. *World Dev.* **2003**, *31*, 1–22. [CrossRef]
22. Goldsmith, A. Foreign Aid and Statehood in Africa. *Int. Organ.* **2001**, *55*, 123–148. [CrossRef]
23. Rajan, R.G.; Subramanian, A. Aid and growth: What does the cross-country evidence really show? *Rev. Econ. Stat.* **2008**, *90*, 643–669. [CrossRef]
24. Easterly, W. Can foreign aid buy growth? *J. Econ. Perspect.* **2003**, *17*, 23–48. [CrossRef]
25. Easterly, W. Can Foreign Aid Save Africa? Clemens Lecture Series 13. 2005. Available online: https://digitalcommons.csbsju.edu/clemens_lectures/13 (accessed on 1 July 2021).
26. Easterly, W. Planners vs. searchers in foreign aid. *Asian Dev. Rev.* **2006**, *23*, 1–35.
27. Booth, D. Aid, Institutions and Governance: What have we Learned? *Dev. Policy Rev.* **2011**, *29*, s5–s26. [CrossRef]
28. Doucouliagos, H.; Paldam, M. Aid Effectiveness on growth: A Meta study. *Eur. J. Political Econ.* **2008**, *24*, 1–24. [CrossRef]
29. Doucouliagos, H.; Paldam, M. The Aid Effectiveness literature: The Sad Results of 40 Years of Research. *J. Econ. Surv.* **2009**, *23*, 422–461. [CrossRef]
30. Doucouliagos, H.; Paldam, M. The ineffectiveness of development aid on growth: An update. *Eur. J. Political Econ.* **2011**, *27*, 399–404. [CrossRef]
31. Collier, P.; Dollar, D. Development Effectiveness: What Have We Learnt? *Econ. J.* **2004**, *114*, 244–271. [CrossRef]
32. Ogbuoji, O.; Yamey, G. Aid Effectiveness in the Sustainable Development Goals Era: Comment on "It's About the Idea Hitting the Bull's Eye: How Aid Effectiveness Can Catalyse the Scale-up of Health Innovations". *Int. J. Health Policy Manag.* **2019**, *8*, 184–186. [CrossRef] [PubMed]
33. Baliamoune-Lutz, M. The effectiveness of foreign aid to women's equality organisations in the MENA. *J. Int. Dev.* **2016**, *28*, 320–341. [CrossRef]
34. Swain, B.; Supriya Garikipati, R.; Wallentin, F. Does Foreign Aid Improve Gender Performance in Recipient Countries? *J. Int. Dev.* **2020**, *32*, 1171–1193. [CrossRef]
35. Ramirez, M.T.; Loboguerrero, A.M. Spatial Dependence and Economic Growth: Evidence from a Panel of Countries. *Borradores de Economia Working Paper*, 3 June 2002; 38p. [CrossRef]
36. Martinho, V. Spatial Effects and Convergence Theory in The Portuguese Situation. *arXiv* **2011**, arXiv:1110.5571.
37. Anselin, L. *ANSELIN, Luc. Spatial Econometrics: Methods and Models*; Springer Science & Business Media: Berlin, Germany, 1988.
38. LeSage, J.P. *The Theory and Practice of Spatial Econometrics*; University of Toledo: Toledo, Ohio, USA, 1999.
39. Kanbur, R. *Aid, Conditionality and Debt in Africa*; Routledge: Oxfordshire, UK, 2000.
40. Newman, C.; Page, J.; Rand, J.; Shemeles, A.; Söderbom, M.; Tarp, F. *Made in Africa: Learning to Compete in Industry*; Brookings Institution Press: Washington, DC, USA, 2016.

41. Kanbur, R.; Noman, A.; Stiglitz, J.E. *The Quality of Growth in Africa*; Columbia University Press: New York, NY, USA, 2019. [CrossRef]
42. Rey, S. Emerging Trends and Challenges for Space-Time Analytics and Software in the Social Sciences. In Proceedings of the 2011 Specialist Meeting-Future Direction in Spatial Demography, Santa Barbara, CA, USA, 12–13 December 2011.
43. Bosker, M.; Garretsen, H. Economic Geography and Economic Development in Sub-Saharan Africa. *World Bank Econ. Rev.* **2012**, *26*, 443–485. [CrossRef]
44. Cuaresma, J.C.; Feldkircher, M.; Huber, F. Forecasting with Bayesian Global Vector Autoregressive Models: A Comparison of Priors. 2013. Available online: http://www-sre.wu.ac.at/ersa/ersaconfs/ersa14/e140826afinal00025.pdf (accessed on 8 February 2021).
45. Prasad, E.; Rogoff, K.; Wei, S.J.; Kose, M.A. Effects of Financial Globalization On Developing Countries: Some Empirical Evidence. In *India's and China's Recent Experience with Reform and Growth*; Palgrave Macmillan: London, UK, 2005; pp. 201–228.
46. Elhorst, J.P. *Spatial Econometrics: From Cross-Sectional Data to Spatial Panels*; Springer: Berlin/Heidelberg, Germany, 2014.
47. Mosley, P.; Hudson, J.; Horrell, S. Aid, The Public Sector and The Market in Less Developed Countries. *Econ. J.* **1987**, *97*, 616–641. [CrossRef]
48. Park, J. *The Origin and Structural Change of International Development Cooperation: Continuity and Discontinuity, World Politics*; Institute of International Studies of Seoul National University: Seoul, South Korea, 2016; Volume 24, pp. 113–159.
49. Lipset, S. *Political Man: The Social Bases of Politics*; Garden City: New York, NY, USA, 1960.
50. Huntington, S. *Political Order in Changing Societies*; Yale University Press: New Haven, CT, USA, 1968.
51. O'Donnell, G. Delegative Democracy. *J. Democr.* **1994**, *5*, 55–69. [CrossRef]
52. O'Donnell, G.; Whitehead, L. (Eds.) *Transition from Authoritarian Rule: Comparative Perspectives*; Johns Hopkins Univ. Press: Baltimore, MD, USA, 1986.
53. O'Donnell, G.; Schmitter, P. *Transitions from Authoritarian Rule: Tentative Conclusions about Uncertain Democracies*; Johns Hopkins Univ. Press: Baltimore, MD, USA, 1986.
54. O'Donnell, G. *Modernization and Bureaucratic Authoritarianism: Studies in South American Politics*; University of California, Institute of International Studies: Berkeley, CA, USA, 1973.
55. Huntington, S.; Joan, N. *Nelson, No Easy Choice: Political Participation in Developing Countries*; Harvard University Press: Cambridge, MA, USA, 1976.
56. Przeworski, A.; Fernando, L. Modernization: Theories and Facts. *World Politics* **1997**, *49*, 155–183. [CrossRef]
57. Tseng, F. Changes in Human Well-being in the Final Phase of Conflict: Evidence from Northern Uganda. *J. Int. Dev.* **2020**, *32*, 1126–1147. [CrossRef]
58. Yoo, H.Y.; Yang, C.Y. Public Health Expenditures and Economic Output: A Cross-Country Analysis. *Korean J. Public Financ.* **2004**, *19*, 29–62.