CENTRAL ASIAN JOURNAL OF INNOVATIONS ON TOURISM MANAGEMENT AND FINANCE

Volume: 05 Issue: 01 | 2024 ISSN: 2660-454X

https://cajitmf.centralasianstudies.org

Effect of Unemployment on Poverty In Nigeria

[1] OZIMS EKWUTOSI PhD

Received 25th Nov 2023,
Accepted 30th Dec 2023,
Online 28th Jan 2024

[1] ***DEPARTMENT OF MANAGEMENT FACULTY OF MANAGEMENT SCIENCES***
IMO STATE UNIVERSITY, OWERRI
ekwutosiozims@gmail.com
08036679568

ABSTRACT: *This study examined the relationship between unemployment and poverty in Nigeria for a 36year period (1987-2022). The findings showed that unemployment rate and human resource investment (proxied by government capital expenditure on education) had a positive significant relationship with poverty index in Nigeria. This implies that as both variables increase, the poverty incidence in Nigeria follows suit. While the control variables of inflation, private consumption and population shared a negative significant relationship with poverty index in Nigeria, implying that as they increase the poverty incidence falls. The study hence concludes that there is an established nexus between unemployment and poverty, with unemployment significantly affecting poverty in Nigeria. it was recommended that, Nigeria is at its lowest ebb in human capital development and utilization because of its obsolete educational system which tends to produce graduates with skills mismatch to current productive realities. Hence the development of entrepreneurial skills and initiatives should be of paramount importance especially in the higher education sector to facilitate the employability of graduates. This would result in increasing productivity, job creation and poverty reduction; the federal government should provide comprehensive population policy to regulate and monitor population by encouraging fertility reduction especially among illiterate families.*

KEYWORDS: *Unemployment, poverty, consumer price index, Household consumption expenditure*

Copyright (c) 2024 Author (s). This is an open-access article distributed under the terms of Creative Commons Attribution License (CC BY).To view a copy of this license, visit https://creativecommons.org/licenses/by/4.0/

Background to the Study

Nigeria continues to be one of the most populated and resource-rich countries in Africa. The nation has a wealth of natural resources, agricultural goods, human resources, and crude oil deposits. Nigeria ranks sixth among OPEC members in terms of daily output and reserves, but it possesses the tenth-largest proven oil and gas reserves in the world. Over 98% of Nigeria's export revenues and over 83% of the country's federal government revenue come from its oil and gas exports. Just oil accounts for almost half of the country's GDP, 95% of its foreign exchange profits, and over 65% of government budgetary receipts.

Furthermore, the average GDP growth rate of Nigeria continuously ranges from 5 to 8%. In spite of Nigeria's favorable macroeconomic data, over 70% of its people live below the $2 per day poverty level. The opinions of Leonard and Kazi (2012), who contend that poverty is likely to worsen as the gap between the rich and the poor continues to increase even while Nigeria's economy is predicted to develop, may support this. According to their subsequent claims, Nigeria's poverty rate was 71.5%, 61.9%, and 62.8%, respectively, based on relative, absolute, and $1 per day metrics.

Obadan (2018) argues that Nigeria's immense riches did not lead to exceptional improvement in the country's socio-economic development, but rather caused it to regress and rank among the 25 poorest nations at the start of the twenty-first century.

Nigeria continues to be the only Organization of Petroleum Exporting Countries (OPEC) member included among the 20 poorest nations in the world. Any nation's unemployment rate is a sign of much more serious issues. The majority of people in Nigeria are under 30 years old. Therefore, it may be said that Nigeria's economy is a young economy. In 2008, the Nigerian government reported that 10% of young people in the country were underemployed and 80% of them were unemployed (Daily Trust, 2008).

In response to the clarion call, the Nigerian government has persisted in its efforts to limit the spread of youth unemployment by offering programs for the development and empowerment of young people in Nigeria. These programs are intended to enable Nigerian youth to contribute to the country's development and assume leadership roles. Still, the outcomes are appallingly lackluster.

Statement of the Problem

According to Omobowale (2014), poverty is a condition in which individuals lack access to positive aspects of life, the means to attain a desired level of well-being, and a standard of living that is acceptable in society. It should be noted that poverty is a common occurrence in rural areas, where a significant portion of the population—roughly 80%—lives below the poverty line and has limited access to social and infrastructural resources (Ogundipe et al., 2019).

Nigeria is ranked above India as one among the world's poorest nations in the Brookings Institution annual study from 2018. Therefore, poverty continues to be a significant barrier to Nigeria's socioeconomic growth despite a number of efforts (Danaan, 2018).

Despite several intervention efforts since the 1970s, the Nigerian government has not been able to maintain development in many important sectors, including housing, education, health, infrastructure, agriculture, and many more (Amaechi, 2018). Nigeria's inability to provide its citizens a standard of living that is on par with developed civilizations is one of the most notable challenges it faces today. Since eradicating poverty is one of the factors that contribute to non-sustainable development, the Sustainable Development Goals were created as a result of the failure of the Millennium Development Goals, which called for halving the world's impoverished population by 2015. (Amoo et al., 2019). The aforementioned situation highlights

Copyright (c) 2024 Author (s). This is an open-access article distributed under the terms of Creative Commons Attribution License (CC BY).To view a copy of this license, visit https://creativecommons.org/licenses/by/4.0/

the need to pay attention to Nigeria's poverty situation and to gain understanding of the topic of poverty and how it affects the country's growth.
Millions of Nigerian youth who have graduated from universities, polytechnics, and other post-secondary institutions are unable to find employment or constructive ways to channel their youthful energies. This is in addition to the unskilled and uneducated youth in rural areas who are at the peak of their physical and mental abilities. This group should, of course, comprise the productive base of any country's economy, but in Nigeria, they wander the streets in quest of work and a means of subsistence.

Objective of the study

This study's overarching goal is to investigate the relationship between poverty and unemployment in Nigeria. Its particular goals are as follows:

1. To evaluate the relationship between unemployment and poverty in Nigeria
2. To determine the relationship between consumer price index and poverty in Nigeria
3. To examine the relationship between Household consumption expenditure and poverty in Nigeria

Research Question

1. Is there any statistical significant relationship between unemployment and poverty in Nigeria?
2. Is there any statistical significant relationship between consumer price index and poverty in Nigeria?
3. What is the relationship between Household consumption expenditure and poverty in Nigeria?

Research Hypotheses

The hypotheses are in null form
$H0_1$: There is no statistical significant relationship between unemployment and poverty in Nigeria
$H0_2$: There is no statistical significant relationship between consumer price index and poverty in Nigeria
$H0_3$: There is no statistical significant relationship between Household consumption expenditure and poverty in Nigeria

Scope of the Study

This study's main goal is to investigate the relationship between poverty and unemployment in Nigeria. The consumer price index, unemployment, household consumption expenditure, investment in human resources, and population growth are the independent factors and the dependent variable in this study is the poverty index. The time frame for the study is 1987–2022.

REVIEW OF RELATED LITERATURE

Conceptual Literature

Concept of Unemployment

According to Akuthson, Messiah, and Araf (2018), one of Nigeria's biggest economic issues still preventing the country from achieving sustainable economic progress is unemployment. Because of this, the Nigerian government has made several attempts to reduce unemployment and the ensuing negative effects on the economy. These efforts have included the establishment of the National Directorate of Employment (NDE) in 1988, the National Economic Empowerment and Development Strategy (NEEDS) in 2004, the Seven

Copyright (c) 2024 Author (s). This is an open-access article distributed under the terms of Creative Commons Attribution License (CC BY).To view a copy of this license, visit https://creativecommons.org/licenses/by/4.0/

Points Agenda in 2007, and the National Poverty Eradication Programme (NAPEP), SURE-P, YOU-WIN, and N-POWER, among other current skills acquisition programs.

Poverty

According to Farraro (2003), poverty is the state in which people have little to no access to material resources, such as clothing, food, shelter, healthcare, education, and other necessities for sustaining and bettering their lives.

According to Akinmulegun (2014), the combination of a corrupt and deteriorating economic strategy and the pervasive corruption of the ruling class in Nigeria today, which has caused the public to lose faith in the government, is a disaster. Poverty will be the main feature of a society where there is heartbreaking unemployment, which is a national tragedy. This condition may arise from population growth and an increased labor force created by the educational sector.

Aiyedogbon and Ohwofasa (2012) contend that this ironic circumstance exists in light of the nation's enormous people and material resources. They underlined how severe the situation is given that, despite enormous resources allocated to the fight against poverty by each of Nigeria's succeeding administrations, no visible progress has been made in this regard.

Nexus between Unemployment and Poverty

In Nigeria, unemployment and poverty continue to be significant obstacles to growth. "A situation in which persons capable and willing to work are unable to find suitable paid employment" is what Udu and Agu (2015) define as unemployment. The International Labour Organization (ILO) (2012) defines jobless workers as individuals who are not employed at the moment but who are willing and able to work for compensation, are now available for employment, and have made a concerted effort to find employment. "The facts of a number of people not having a job; the number of people without a job; the state of not having a job" is how Hornby (2010) defines unemployment. Lately, there has been a focus on investigating the potential causes and reasons behind Nigeria's persistent production growth's inability to provide sufficient job opportunities and lower the country's unemployment rate. Nwagwu (2014) notes that despite Nigeria's abundant human and material resources—such as oil boom earnings, rapid government income, and rising foreign reserves—the country's unemployment rate is quite high. The root causes of Nigeria's youth unemployment crisis include unfavorable and flawed economic policies, serious and hostile effects of corruption on the country's economy that also hinder the creation of jobs, high exchange rates, unaffordable interest rates, and unfortunate infrastructures that limit the capacity of the private sector to hire (Nwagwu, 2014).

Theoretical Literature

Poverty Theories

Researchers are interested in poverty as a social reality, and initiatives to reduce it are created in response to ideas that support these kinds of interventions. The alleviation strategies that are implemented are directly influenced by the poverty paradigm (Bradshaw, 2005). Effective assessments and a thorough comprehension of the major variables that influence households' welfare status are necessary for poverty reduction initiatives, in addition to additional covariates. Anyanwu (2014). As a result, there exist differences in poverty ideas, which lead to various approaches to intervention. The culture of poverty, individual deficiency theory, progressive social theory, geographic disparities theory, cumulative and

Copyright (c) 2024 Author (s). This is an open-access article distributed under the terms of Creative Commons Attribution License (CC BY).To view a copy of this license, visit https://creativecommons.org/licenses/by/4.0/

cyclical interdependence theory, poverty individualization, and the theory of social exclusion/cumulative disadvantage are some of the lenses this paper uses to analyze poverty in Nigeria.

Classical Theory of Unemployment

The two arms of the classical theory of unemployment, labor supply and labor demand, describe the factors that contribute to unemployment. Because labor demand is a derived demand that is negatively sloped downward, it follows that as wages rise, so does the demand for labor, and vice versa. Conversely, the labor force and the willingness to work or not (leisure), which is also a function of real wage, determine the labor supply. A distinct equilibrium of wages and employment is produced when labor supply and demand are in balance. The traditional theory of unemployment maintains that there is never involuntary unemployment since it bases its theories on the ideas of perfect competition, free markets, and other ideas. According to classical economics, there can only be inefficiencies in the free market that lead to unemployment, such as mismatches in the labor market caused by an excess supply of labor relative to the demand for labor. The invisible hand of labor supply and market demand can self-correct this situation.

Empirical Literature

Using the autoregressive distributed lag technique of estimation, Nwosa and Ehinomen (2020) investigated the relationship between income inequality, poverty, and economic growth in Nigeria from 1981 to 2018. The findings indicated that whereas poverty has a negligible effect on economic growth, inequality has a favorable and considerable impact on Nigerian economic growth.

Using pooled ordinary least square, fixed effects, and system generalized technique of moment, Adeleye et al. (2020) conducted a comparative analysis on growth, poverty, and inequality in sub-Saharan Africa, Latin America, and the Caribbean countries during the years 2000 to 2015. The study's findings indicate that while economic growth lowers poverty, inequality growth rate increases it. Furthermore, there exist variations within and between groups in the growth-poverty-inequality triangle. But the study comes to the conclusion that one major factor influencing poverty is income disparity.

Using data from 1984 to 2018, Dada and Fanowopo (2020) used autoregressive distributed lag to analyze the influence of institutions on the link between economic growth and poverty reduction in Nigeria. The study's findings demonstrated the long- and short-term benefits of economic growth and institutions (as measured by political stability and corruption control). Accordingly, the study discovered that two important elements that might be utilized to lessen poverty in Nigeria are economic growth and robust institutions.

Summary of Literature/Gap in Literature

Given the above-mentioned diversity of approaches to the topic, it has been noted that most earlier researchers did not use more advanced econometric tools in their empirical analysis. Furthermore, very few earlier studies conducted post-estimation tests to confirm the accuracy of their empirical findings. It's interesting to note that this study aims to fill up the gaps in the literature mentioned above.

RESEARCH METHODOLOGY

Research Design

Expo factor research design is the research methodology used in this work. When manipulating the characteristics of human participants is not feasible nor appropriate, this is the best option for doing social research. When using a genuine experimental design is impractical or unethical, it can be used as a stand-in for true experimental research to test theories on cause and effect or correlational links. Expo factor design makes advantage of pre-existing data, however it's not always gathered for study purposes.

Copyright (c) 2024 Author (s). This is an open-access article distributed under the terms of Creative Commons Attribution License (CC BY).To view a copy of this license, visit https://creativecommons.org/licenses/by/4.0/

Model Specification

The model makes changes to the empirical research conducted by Egunjobi (2014), who looked at unemployment and poverty in Nigeria. His exogenous variables were unemployment, gross capital formation, and government capital expenditures on education. His model formulation used per capita income to indicate poverty. This study extends and changes his models by using the poverty index as a proxy for poverty, substituting private consumption for gross capital formation, and adding population growth and inflation to the list of explanatory factors. Keji's (2021) empirical findings, which demonstrate a correlation between private consumption, inflation, and population growth rate and poverty, provide support for the introduction of these factors. The model is expressed as follows:

Our model is a linear one of the form:

POVIDX = *f*(Xi)…………………………………………………… (1)

Where; POVIDX= Poverty index

Xi = set of chosen explanatory variables.

The chosen variables are reflected in the model as

POVIDX = *f* (UNE, CPI, LHHCE,)……………………… (2)

Where,

POVIDX= Poverty index

UNE= Unemployment rate

CPI= Consumer price index (an indicator for inflation rate)

LHHCE = Household consumption expenditure (a proxy for private consumption

The mathematical form of the model

$Y = b_0+b_1X_1 + b_2 X_2 + b_3 X_3 + U$…………………(3)

Test of Significance

Using the coefficients of the independent variables and adhering to the following rule, the significance test was conducted at the 5% level of significance: If the t-prob is less than 0.05, reject the null hypothesis; if the t-prob is more than 0.05, accept the null hypothesis. In other words, reject if the t-prob is less than 0.05 and accept if the t-prob is greater than 0.05.

RESULT

Data Analysis

The estimates from the analysis (ADF, regression, test of co-integration) carried out using E-views 10 software are presented thus:

Unit Root Test

A unit root test (ADF) was conducted to ascertain whether the variables in the model are stationary. This is necessary as it helps to avoid spurious regression results.

The summary of Unit Root Tests (ADF) results using E-views software is detailed in the table below:

Table 1: Summary of ADF test results at 5% critical value

VARIABLE	ADF TEST STATISTICS		CRITICAL AT VALUE 5%		ORDER OF INTEGRATION	DECISION RULE
	AT LEVEL	1^{ST} DIFFERENCE	AT LEVEL	1^{ST} DIFFERENCE		
POVIDX	-0.4558	-5.7639	-2.9484	-2.9511	I~ (1) 1^{ST} DIFFERENCE	Reject Ho
UNE	-0.5037	-5.0338	-2.9484	-2.9511	I~ (1) 1^{ST}	Reject Ho
CPI	-4.0635	-3.1917	-2.9540	-2.9718	I~ (0) LEVEL	Reject Ho
LHHCE	-0.6277	-7.1146	-2.9484	-2.9511	I~ (1) 1^{ST}	Reject Ho

Source: Authors computation with E-views 10

Copyright (c) 2024 Author (s). This is an open-access article distributed under the terms of Creative Commons Attribution License (CC BY).To view a copy of this license, visit https://creativecommons.org/licenses/by/4.0/

The consumer price index (CPI) was the only one in table 1 above to be stationary at level form; at the 5% level of significance, its ADF stat was -4.0635 larger than -2.9484. The endogenous variable Poverty index (POVIDX) became stationary at first difference with an ADF of -5.7639 more than its critical value at the 5% level of significance. Its ADF stat of -0.4558 was smaller than the level ADF stat of -2.9484. With an ADF stat of -0.5037, the unemployment rate (UNE) was not stationary at level form. However, at first difference, it became stationary with an ADF stat of -5.0338, which was more than its critical value at the 5% level of significance. The natural log of household consumption expenditure (LHHCE) was stationary at first difference (-7.1146) because its ADF was more than its critical value at the 5% level of significance, but it was not stationary at level form because its ADF (-0.6277) was lower than its critical value.

Summary of Parsimonious Short Run Relationship Result between unemployment control variables and poverty in Nigeria

ARDL Model (3.3.4.4.4.3)

Conditional Error Correction Regression				
Variable	**Coefficient**	**Std. Error**	**t-Statistic**	**Prob.**
CointEq(-1)*	**-0.73984**	**0.082384**	**-8.9810105**	**0.0003**

Source: Author's Computation with E-views 10

According to table 3 above, at the 5% level of significance, the coefficient of the error correction term, or cointEQ, is statistically significant and bears the anticipated negative sign. In the long run, an adjustment to the equilibrium of poverty in Nigeria is predicted to occur at a speed of 0.7398, or 73.98%. This finding suggests that the fundamental mechanism for reducing unemployment in Nigeria would be misspecificated if error correction in non-stationary time series analysis were disregarded.

Summary of Long Run coefficient of Unemployment control variables as its affect poverty in Nigeria.

Variable	Coefficient	Std. Error	t-Statistic	Prob.
UNR	**2.105058**	**0.736772**	**2.857136**	**0.0355**
CPI	**-1.614488**	**0.505620**	**-3.193085**	**0.0242**
LHHCE	**-4.45E-12**	**9.98E-13**	**-4.454817**	**0.0067**
C	**-2821.780**	**604.4731**	**-4.668164**	**0.0055**

Source: Author's Computation with E-views 10

TEST OF HYPOTHESES

Hypothesis 1

Ho_1: unemployment rate has no significant relationship with poverty in Nigeria

Conclusion

The likelihood of the t-stat of the parameter (UNR) was 0.0355, and less than 0.05 critical values, according to the ARDL long run coefficient result. As a result, we reject the null hypothesis and come to the conclusion that poverty and the unemployment rate in Nigeria are significantly correlated.

Copyright (c) 2024 Author (s). This is an open-access article distributed under the terms of Creative Commons Attribution License (CC BY).To view a copy of this license, visit https://creativecommons.org/licenses/by/4.0/

Hypothesis 2

Ho_2: inflation rate has no significant relationship with poverty in Nigeria

Conclusion

The likelihood of the t-stat of the parameter (CPI) was 0.0242, and less than 0.05 crucial levels, according to the ARDL long run coefficient result. As a result, we find that there is a substantial correlation between changes in the inflation rate and poverty in Nigeria and reject the null hypothesis.

Hypothesis 3

Ho_3: household consumption has no significant relationship with poverty in Nigeria

Conclusion

The likelihood of the t-stat of the parameter (LHHCE) was 0.0067, and less than 0.05 critical levels, according to the ARDL long run coefficient result. As a result, we find that household consumption and poverty in Nigeria are significantly correlated and reject the null hypothesis.

Conclusion

The results indicated that the poverty index in Nigeria was positively and significantly correlated with the unemployment rate and human resource investment (as measured by government capital spending on education). This suggests that the incidence of poverty in Nigeria rises in tandem with both variables. The population, private consumption, and inflation control variables all have a significant negative connection with the Nigerian poverty index, suggesting that when these variables rise, the incidence of poverty declines.

The study hence concludes that there is an established nexus between unemployment and poverty, with unemployment significantly affecting poverty in Nigeria.

Recommendation

Thus the following recommendations are important

1. Nigeria's outdated educational system, which tends to produce graduates with skills mismatched to present productive realities, is the reason the country is at its lowest ebb in terms of human capital development and utilization. Therefore, it is crucial to support the development of entrepreneurial efforts and abilities, particularly in higher education, in order to increase graduates' employability. Productivity would rise as a result, creating jobs and reducing poverty.
2. To control and monitor population growth, the federal government should implement comprehensive population policies that promote fertility reduction, particularly among families with low levels of education. In order to reduce poverty, the real sector of the economy should be strengthened and small business owners and entrepreneurship should be encouraged through incentives and subsidies.
3. The country's current inflationary pressures have caused a decline in household real income, which makes poverty worse by reducing households' purchasing power. Therefore, in order to reduce the country's poverty rate, the government and her monetary management should put price stabilization policies into place.

References

Adeleye, B. N., Gershon, O., Ogundipe, A., Owolabi, O., Ogunrinola, I., & Adediran, O. (2020). Comparative investigation of the growth-poverty-inequality trilemma in Sub-Saharan Africa and Latin American and Caribbean Countries. *Heliyon*, *6*(2020), e05631.

Copyright (c) 2024 Author (s). This is an open-access article distributed under the terms of Creative Commons Attribution License (CC BY).To view a copy of this license, visit https://creativecommons.org/licenses/by/4.0/

Aiyedogbon, J. O. and Ohwofasa, B. O. (2012). Poverty and youth unemployment in Nigeria. *International Journal of Business and Social Science,* Vol. 3, No. 20

Akinmulegun S. O. (2014). Unemployment and Poverty Paradigm in Nigeria: Challenges and Prospects. *International Journal of Management and Administrative Sciences*, Vol. 2, No. 3, pp16-23

Akuthson, S., Messiah, A. J. &Araf, Y. D., (2018). The impact of unemployment on economic growth in Nigeria: An application of Autoregressive Distributed Lag (ARDL) Bound Testing. *Sumerianz Journal of Business Management and Marketing 1 (2): 37-46.*

Amaechi, L. N. (2018). Food security and sustainable agricultural development in Nigeria. The International Journal of Social Sciences and Humanities Invention, 5((05):), 4765–4768. *American International Journal of Social Science*, *3*(7), 147–153. https://www.aijssnet.com/journals/Vol_3_No_7_December_2014/16.pdf

Bradshaw J (2005) How Has The Notion of Social Exclusion Developed In The European Discourse? Plenary Paper for the, Australian Social Policy Conference 2003, Sydney, July 10

Dada, J. T., & Fanowopo, O. (2020). Economic growth and poverty reduction in Nigeria: The role of institutions. *Ilorin Journal of Economic Policy*, *7*(1), 1–15.

Daily Trust, (2008)Eighty percent of Nigerian Youths Unemployed – FGN dailytrust.com, November 26

Danaan, V. V. (2018). Analying poverty in Nigeria through theoretical lenses. *Journal of Sustainable Development*, 11(1), 20–31

Ferraro. V , (2013). Globalizing Weakness: Is Global Poverty A Threat To The Interest Of States? Environmental Change and Security Project. Vol. 9, PP.12-19

Hornby. A. S. (2010). Oxford Advanced Learner's Dictionary of Current English. Oxford: Oxford University Press. England

International Labour Organisation (2012). Global employment trends for youth 2012.

Keji S.A (2021) "An empirical nexus between poverty and unemployment on economic growth". *Jurnal Perspektif Pembiayaan dan Pembangunan Daerah* Vol. 9 No. 1, March – April 2021 ISSN: 2338-4603 (print); 2355-8520 (online)

Nwagwu, E. J. (2014). Unemployment and poverty in Nigeria: A link to national insecurity. *Global Journal of Politics and law Research,* Vol. 2, No. 1, pp19-35

Obadan, M. I. (2018) Poverty in Nigeria: Characteristics, Alleviation Strategies and Programmes, NCEMA Analysis Series, Vol. 2, No. 2.

Copyright (c) 2024 Author (s). This is an open-access article distributed under the terms of Creative Commons Attribution License (CC BY).To view a copy of this license, visit https://creativecommons.org/licenses/by/4.0/

Ogundipe, A. A., Ogunniyi, A., Olagunju, K., & Asaleye, A. J. (2019). Poverty and income inequality in rural agrarian household of southwestern Nigeria: The gender perspective. *The Open Agriculture Journal*, 13(1), 51–57.

Omobowale, A. O. (2014). Livelihood, agro ecological zones and poverty in rural Nigeria. *Journal of Agricultural Science*, 6(2), 103–113.

Udu, E. and Agu, G.A. (2015). New System Economics. Africana First Publishers Ltd. Onitsha

Copyright (c) 2024 Author (s). This is an open-access article distributed under the terms of Creative Commons Attribution License (CC BY).To view a copy of this license, visit https://creativecommons.org/licenses/by/4.0/