

Methodological Orientations in the Natural and Social Sciences on the African Development Discourse

Damilola Peter OLATADE

Department of Philosophy, Lagos State University,
Ojo, Lagos, Nigeria Tell: +2347035051855
dammy.olatade@gmail.com

Abstract

It is a norm among the social science disciplines to admit unto themselves, the methodological approaches of the natural sciences. Much as the focus of each of them differs, it is worrisome to attempt to study, via observation and experimentation human values and feelings for the sake of regularity and prediction by the social science. Through the method of critical analysis, this research employs the approach of economics to demonstrate how the techniques and objectives of the natural sciences is used in their assessments of the economic relationships among people in society. The present study uses idea of 'technicism' as it presents itself in the writings of Claude Ake as a tool for Western hegemonization of Africa by offering data of imperialist social sciences mediated by natural science methodology for Africa's development. Consequently, the journey toward the use of the method of the natural sciences for the social science disciplines will not yield universal results that are pliable in other climes. This is precisely why the development question has remained elusive for Africa. The excessive reliance on the method of the natural sciences by the social sciences has led to the use of needless and fruitless economic theories emerging from the global north but which has not been able to mediate the much-sought development in the global south.

Keywords: African Development, Methodology, Natural Sciences, Social Sciences, Values

Introduction

The methodological narratives of the social sciences and the natural

sciences share a primary concern – to comprehend nature and humanity's place in it. This is because both of them may be seen as employing the quantitative method for their analyses. Much as this is true, the one studies humans and their relationship in the society, whereas, the other focuses on nature and inanimate beings. So, in this study we shall be looking at the distinct concerns of each of them. In the course of this study, we shall look at the main character of the social sciences. Afterward, we proceed to the natural sciences. In the last section, effort will be made to assessing the places of divergence and convergence in the research ambition of each of them. In the final analysis, this study will consider how fitting the social sciences, especially economics has been able to employ the universal nature of the pure sciences in providing a viable breakthrough for Africa's quest for development. However, the first task is to examine the meaning and nature of science itself in order to see whether the 'science' in 'social' is correctly applied as the science in 'natural.'

The Meanings of Science

Science as a discipline lacks a universally accepted definition (Heilbron, 2003). At some point in human history, many works on science were tagged, “natural philosophy” (Alozie, 2004:4). Science may be taken to mean “knowledge acquired by careful observation, by deduction of the laws which govern changes and conditions, and by testing these deductions by experiment” (Cayne, 1992:895). Elsewhere, we read that “science is a systematic enterprise that builds and organizes knowledge in the form of testable explanations and predictions about the universe” (Wilson, 1999). For Isaiah Ngedu “science is not a field of study like mathematics, chemistry and economics, but a method which should be applied to other branches if they must gain relevance in the modern world” (Ngedu,

2014:245). This trend, to define science using its method of inquiry is also suggestive in Heilbron (2003:13).

The method of Western science is predicated on sensual observation of the phenomena. In this guise, philosophers of science under the nomenclature of Vienna Circle and even Karl Popper have tinkered over the constituent of Western scientific methodology. The aim is to distinguish what counts as science from non-science. Obviously, the method of inquiry counts and lends credence to what science *is*. For instance, the Vienna Circle or logical positivism as they are popularly called used the principle of verification to dichotomise science from non-science. They held that science alone is meaningful. They furthered that even meaningfulness comprises of verifiability owing to science as an orientation affiliated to empirical verification (Popper, 1959:11).

From the brief discussion provided so far, we can easily see that when talking about science, it is a discipline with a set of methodology that it uses to understand nature, predict some regularities in it and then use same to inform predictions for the benefit of humans and things of human interests. How did this method begin and how effective is it? This is the focus of the next section as it looks at methodological approach of the natural sciences.

Methodological Approach of the Natural Sciences

It has been recognized that “the maturation of empirical science, as catalyzed by Galileo Galilei, was fundamental in triggering the industrial revolution, the most significant transformation of human society in the last 10000 years” (Jaffe, 2014: NP). A large effort is

now invested in analyzing scientific productivity and its social dynamics. Entire journals are dedicated to it, such as *Scientometric* and the *Journal of Informetrics*. The dynamics of research in the natural and social sciences however diverges. This has been recognized long ago but pinpointing precise quantitative differences between both sciences has been an elusive endeavour (Hayek, 1952). Few efforts analyze the mechanics through which the scientific method works best. The scientific method relies on several key elements for its smooth working (Jaffe, 2010). Among them are:

1. Humility to recognize that our mind is very limited in grasping the underlying dynamics of natural phenomena and needs the experiment or an empirical feedback to keep it from digressing into the absurd;
2. Science is not interested in absolute truth but in incremental advancements in our understanding of nature; and
3. Mathematics as the best language to ask nature questions.

It is with the afore-stated conviction that the principal character of method in the natural sciences thrive. In the next section, we are going to consider how effective or possible it is to talk about these kinds of approach in the study of humans and their relationship in the society which is the task of the social sciences.

The Social Sciences and the Question of Method: Economics in Focus

A discipline such as economics, for instance, has been considered as a social science. The question then is: what does economics study? How effective is economics in this goal? Does it study the relationship among humans in the same way and manner that science

does? Economics as a discipline may be viewed as the “study of the way in which natural resources are used and how the wealth they produce is divided, and of the application of the underlying principles to the needs and prosperity of society.” (Cayne;1992:296).

In economics, there is a way and manner through which metaphysical propositions not only express moral feelings but also provide hypothesis. Yet, it is the business of Economists, not to tell us what to do, but to show why what we are doing anyway is in accord with proper principles. At this juncture, it must be stated that Economics has many inherent problems just as other Social Science disciplines who embrace scientific methodology do. On the problem of methodology, Joan Robinson once again observes that:

The great difficulty in the social sciences (if we may presume to call them so) of applying scientific method, is that we have not established an agreed standard for the disproof of a hypothesis. Without the possibility of controlled experiment, we have to rely on interpretation of evidence, and interpretation involves judgment; we can never get a knock-down answer. But because the subject is necessarily soaked in moral feelings, the judgment is colored by prejudice (Robinson, 1964:26).

From the foregoing, it is lucid that even economics as a social science is based on moral feelings as we have observed before and this necessarily affects its judgments. To pursue our claim to a plausible conclusion, we will show the mixture of ideology and

science in this discipline by examining the concept of 'value' in the reflections of the classical economists from whence contemporaneous idea of the concept flows.

What is value? What does it mean to say a commodity has so and so value? These simple questions have given economists a hard time right from the period of Adam Smith. The term 'value' has been used in two senses: 'value in use' and 'value in exchange'. The former being the utility of any particular object while the latter denotes that which have the power of purchasing other goods. It does not mean market prices as most of us are wont to argue. This is because market prices vary from time to time under the influence of causal accidents. Value is something which should explain how prices come to be what they are. Yet, it has given the classics troubles. How does Adam Smith react to this impasse?

In his *Wealth of Nations*, Adam Smith puts forward the labour-time theory to account for the value of any object. He explains that “it is natural that what is usually the produce of two days or two hours labour, should be worth double of what is usually the produce of one day's or one hour's labour” (Smith, 1982:25). He uses a community of hunters to drive home his point. In this community, it usually costs twice the labour to kill a beaver which does to kill a deer. Hence, one beaver should naturally exchange for or be worth two deer. But let us consider Adam Smith's theory analytically. How did it come about that the hunters wanted to trade given that each can pursue its own need as he claimed in a later part of this work? Exchange arises from specialization, but Smith clearly intends that the forest was free for all. And in that forest there was no division of labour. Why then should there be any trade if anyone man may get for themselves

whatever they wish? In a later chapter of the same book, he contradicts himself arguing that “in that rude state of society, there is no division of labour, in which exchanges are seldom made”. It may be inferred that there can never be a normal price-ratio if we pursue Smith's assertion to its logical conclusions. It becomes obvious that labour-time cannot have anything to do with value. Even Smith's story of the beavers and deer has no warrant whatsoever either analytical or historical. He derived it from his own moral preconceptions – one that is built on the assumption that the hunters were living in an idyllic past when the economic system was morally satisfactory. Therefore, he might as have well opined that 'that is how it ought to be'.

In the latter periods, John Meynard Keynes comes on board to defend and put Economics back on its right tracks. His analysis was superb and convincing. He however has some metaphysical baggage imported from the reflections of his predecessors. His work, dubbed the Keynesian Revolution was even condemned by other economists despite its overall achievements. First, he supports capitalism despite his recognition of its unfairness in distribution of goods of society among its citizens. Yet, his defense was based on expediency. Joan Robinson (1964:72) in her book quotes John Keynes and she writes:

For my part, I think Capitalism wisely managed, can probably be made more efficient for attaining economic ends than any alternative system yet in sight, but that in itself it is in many ways extremely objectionable. Our problem is to work out a social organization which shall be as efficient as possible without offending our notions of a satisfactory way of life.

It is explicit from the above that Keynes is an advocate of capitalism despite acknowledging the fault therein. It is logically correct to say that his reflections were merely fueled by the need to protect and keep the status quo intact at the expense of the masses. Keynes sees all of these, his moral convictions recognized it but the ruling class would frown at it. So Keynes would have thought, instead of making a destructive critique of capitalism, why not 'repair' or 'patch' it up? Another notable achievement of his work is that it evinces the problem of choice and judgment which had hitherto plagued the explanations of the classics. However, it is our opinion that Keynes' theory leads to conclusions which in our opinion are reactionary. This is evident in the connection between Keynesian economics and classical economics.

One of the main sources of conflict between the Keynesian and classical theories lies in the way the difference between the demand for and supply of money should be corrected – the *Quantity Theory of Money*. In the classical theory, an increase in supply will raise unwanted cash holding, since a rational individual does not hold money for its own sake, excess money would be spent on goods and services, pushing the prices upwards with a given level of output. Put otherwise, the classical quantity theory of money and the quantity equations do not show how a change in the quantity of money reacts upon the price level. Keynes tries to tackle this aspect of the problem in his *General Theory* by a restatement of the quantity theory.

In doing so, he integrates the theory of money with the theory of employment. To Keynes, the effect of changes in the quantity of money on the price level (in turn, the value of money) should be visualised through the inter-related effect on the wage rate, income,

investment, employment, etc. Thus, an increase in the quantity of money will have no effect whatsoever, on prices, so long as there is unemployment, and in addition to the principle that employment will increase in exact proportion to any increase in effective demand brought about by the increase in the quantity of money. Keynes conjectures that as soon as full employment is reached, wage rate and price will increase in exact proportion to the increase in effective demand.

We must understand that the Keynesian Revolution is not without its problem. First, it has a basic assumption that the economy under scrutiny will reach a stage of full employment. Keynes was using some metaphysical concepts which are merely words that have no concrete existence. S. Priyadarshini in his online essay on Keynes writes that for Keynes:

After a full employment stage is reached, an increase in the quantity of money spends itself entirely in raising the price level because, an increase in effective level caused by the increased quantity of money would not be to increase the volume of employment and output (Priyadarshini, 2012: 25).

The above excerpt clearly show that the idea of achieving full employment in an economy is a possibility even when experience show otherwise. Rather than have full employment in the world today, workers are being laid off while they are being replaced by machines. This is evident in the clamour for the Fourth Industrial Revolution in recent times. Furthermore, Keynes fails to provide a complete explanation of a price rise before full employment is reached by the economy. In particular, inflationary tendencies in

undeveloped countries, such as India, cannot be well explained by the theory. We also observe that the Keynesian theory of money and prices is too general. It fails to examine the sectional price behavior of interrelationship between money supply and prices.

It is the opinion of this paper that it is upon these metaphysical and ideological foundations of economics that various theories of economic development that are offered to Third World countries by the West rests. Some of these theories are: the linear-stages-of-growth model; theories of structural change; the neo-classical, free market theories, etc. For example, when one considers Walt Rostow's analysis (a popular example of the linear-stages-of-growth model) of development and underdevelopment, one begins to see a similar ideology in play, i.e. the defense of capitalism and a guise of Western economic hegemony over Africa. Walt Rostow, the economic historian of the 20th century explains that the transition from underdevelopment to development can be described in terms of a series of steps or stages which all countries must pass. His theory has been termed linear-stages-of-growth model. In the opening chapters of his *The Stages of Economic Growth: A Non-Communist Manifesto*, He points that:

This book presents an economic historian's way of generalizing the sweep of modern history... It is possible to identify all societies, in their economic dimensions, as lying within one of five categories: the traditional stage; the pre-conditions for takeoff into self sustainable growth; the take off; the drive to maturity; and the age of high mass consumption... These stages are not merely descriptive. They are not merely a way of generalizing certain factual

observations about the sequence of development of modern societies. They have an inner logic and continuity... (Rostow, 1960:3).

The implication in the above is that while the developed countries had all passed the stage of take off into self-sustaining growth, the underdeveloped countries are still at the traditional stage. Hence, there is the submission that the underdeveloped has to follow some rules to project into a more advanced stage.

Different sciences and scientific disciplines cultivate different values and attitudes and show differences in quantifiable characteristics. We also know that the development of different scientific disciplines evince different effects on economic growth. For example, the subject areas with the largest relative number of publication in wealthy countries today are neuroscience and psychology; investment in these areas however does not produce economic growth in less developed countries. In contrast, middle income countries that give more value to basic natural science in a given time period show faster economic growth in the following years.

Additionally, countries whose researchers are less provincial and cite more works from countries different to theirs (have fewer country self-citations) are also those whose scientists produce relatively lower numbers of author self-citations. These countries are the ones producing scientific papers with higher overall citation impact.

Social Sciences, Methodology and the Lacklustre in Africa's Development Agenda

In this section, we consider the claim that Africa is a continent very far from developing. Of course, the schema used to decide whether or not a country could be termed developing or not comes from Western scholarship and it has been assessed mainly from the economic parlance. Hence, the late Professor Ikenna Nzimiro is quite right to have expounded that “the modern functionalist school of thought in sociology, economics and anthropology, which define what development and underdevelopment mean, are victims of evolutionary theory. For example, development has been seeing only in economic terms.” (Nzimiro,1977:17). The following indicators are usually employed: Gross national product, Average per capita income, Standard of living index, Calories intake, Level of education or literacy, Proportion of population in urban centers, etc. Against this paragon, underdeveloped countries are characterized by: Low income, High population density, High rate of illiteracy, Low capital savings, Lack of skilled manpower; short life expectancy among others. Philosophically, this model for deciding who is developed and underdeveloped is necessary but not sufficient. This schema for development is problematic and it stems from the ideological foundation of the discipline of economics.

Africa is a continent with vast natural resources that has not helped the people grow. It is an open secret that colonialism truncated the development of Africa. Colonialism brought capitalism which penetrates any market to shape the productive forces mainly for the benefit of profits. Hence, the continent became a battle ground among countries of the West for resources and cheap labour culminating into the Berlin Conference of 1884 which legalized the

partitioning of Africa. Claude Ake reacting to this idea retorts that:

...more emphasis was placed on the justification of colonialism as a service to the colonized people. What service? Essentially the service of civilizing them. That is why colonialism was 'popularly' referred to by colonizers as a civilizing mission. According to the theory, the civilization of the native, includes among other things, bringing them Western Education, the benefits of Western technology, bringing them into the stream of human history, getting them to discard their 'barbaric culture' and generally redeeming a way of life captive to ignorance, poverty and disease (Ake, 1981:83).

The above analysis from Claude Ake reveals the deep-seated implication of globalization as conceived today. What we have in the above excerpt is internationalism. To put in another way, the foreigners may put a claim thus: “we have helped a barbaric people realize their potentials and have initiated them into our quest to making the world a global village.” But as is well known the colonization of a people will usually involve a brutal process: the military expedition to liquidate dissident indigenes and sometimes whole villages. The colonial process destroys a people's culture, makes use of force to make people toil under inhumane conditions sometimes leading to their death, the devastation of the environmental as is the case with the Niger Delta where oil spillages causes crop failure and cessation of aquatic biomes (Ofuasia 2022). Is this the civilization that they purport to have brought to Africa?

So far, it has been argued that some of the major problems making development elusive to the African continent has to do with the

foreign theories employed to assess the development conundrum of Africa as well as the stigmatization already widespread and accentuated that Africans are inferior hence their development will not be as the advanced capitalist countries of the world. The latter claim is precisely what Nigerian economist Claude Ake calls 'technicism.' What is technicism? How does this term operated within the domain of the question of African development? These are the crucial posers that we seek to engage with shortly.

In the words of Ake (1982: 174) “technicism is a particular useful tool of imperialism and capitalism because it discourages revolution, it re-enforces the dependence of the satellite states” He furthers that “technicism also serves imperialism by concealing the fact that imperialism is the major cause of underdevelopment” (Ake, 1982: 176).

It is clear that for Ake, the reason why underdevelopment continues to linger and remain almost insurmountable is due to the fact that imperialism plays a crucial role as a mainstay. While we agree with Ake, within this spectrum, let it be added that imperialism can only thrive with the assistance of some indigenous Africans whom Rodney too had in mind when he penned that:

The question as to who and what is responsible for African underdevelopment can be answered at two levels. Firstly, the answer is that the operation of the imperialist system bears major responsibility for African economic retardation by draining African wealth...Secondly, one has to deal with those who manipulate the system and those who are either agents or unwitting accomplices of the said system (Rodney, 1971: xiv).

From the above, it is obvious that rather than the usual division between the externalists and the internalists regarding the question of underdevelopment in Africa, this study takes an eclectic outlook. This is the position offered by Ofuasia (2022) as he explains that such a division on Africa development is needless. Eclectic precisely because from research, it is our conviction that one cannot wholly blame the one for the other. For instance, when African heads of government loot their country's treasury, the loot is transferred to foreign accounts in Paris, Geneva and even New York. In the same vein, these are the commercial institutions in countries that claim to be assisting Africa fight corruption and capital flight. One may then ask: if the West had no role to play in African underdevelopment, how come it is difficult to repatriate to Africa some of the stolen sums in their banks? The above question further serves as a basis for the impoverished reality of the African and Africa.

One may begin by correcting the age-long position that traditional African living prior to alien encounter was communitarian. Bonaventure Ozoigbo (2016:17) thinks that such does not help a faithful rendition of that era because traditional Africa "...was and is actually capitalist" Oziogbo was, however, able to further put the caveat that:

...its capitalist style is unlike that of the Western world which is rooted in exploitation thereby breeding conflict between the bourgeoisie and the proletariat. Africa's own is anchored on individualism, hard work and resilience. Traditional African society can be socialist or communitarian only intermittently, in the presence of a challenging situation. Once the situation is taken care of everything reverts to the original capitalist system (Ozoigbo, 2016:17).

The immediate post-colonial African leaders built their theories of development on this erroneous conception of the African Mind and Society and the consequence is a catastrophic failure in the bid to develop Africa. The successors of this first generation of African leaders did not toe the part of their predecessors in this developmental enterprise. They abandoned everything about socialism whether African or foreign and embraced 'free market' model of development. They generally engaged in buying and selling – selling their natural resources and buying finished and semi-finished products from outside (Ozoigbo, 2016:17). This kind of practice also can never bring the desired development. Buying and selling can only succeed in killing the developmental vision in Africa, hence, underdevelopment is still staring at Africa (Ozoigbo, 2016:17).

It is however, the understanding here that for Africa to be able to attain any drive for meaningful and reflecting development, such exercise must be indigenous, it must come from the people and be based on their environment. This is exactly what the Guyanese scholar Walter Rodney whom we had cited earlier meant when he puts that:

A society develops economically as its members increase jointly their capacity for dealing with the environment. This capacity for dealing with the environment is dependent on the extent to which they understand the laws of nature (science), on the extent to which they put their understanding into practice by devising tools (technology), and on the manner in which work is organized (Rodney, 1971:10).

The honest position of Rodney and some African scholars is that

development cannot be imported, it must be internally based and considered. Any external link has to be comparative in nature thereby ensuring advancement (Ozoigbo, 2016: 18). The current and future African leaders should always bear in mind the history of African relationship with the Western world especially Europe. Even when we can praise some of the positive aspects of the globalization process, we maintain that Africa can never achieve any reasonable development based on dependent approach. In the preceding section, we had already stated exactly how a dependency model works as well as some of the problems that are suggestive of its failure on the African soil. This attitude had Rodney chronicling that “African development is possible only on the basis of a radical break with international capitalist system, which has been the principal agency of underdevelopment of Africa over the last five centuries” (Rodney, 1971: 7). The line of argument of Rodney tallies with that of so many African theorists who believed that no country or continent will willingly go all out to develop another without seeking her interest which most often is antithetical to that of the supposed poorer one. Development that is indigenous addresses in a better way the peculiar need of that social formation more than an imported one (Ozoigbo, 2016: 18).

It is obvious that Africa remains underdeveloped largely because of some of these realities. The dependent attitude which Claude Ake points out is a very serious one. It is this conviction that endorses the outlook that it is nearly impossible to consider.

Conclusion

The lesson to deduce from the economic assessment of the method of the social sciences is that they aim to use some ends derived from

human behaviour to serve as yardstick for all humanity. In other words, the few assessment made from two or three individuals are what they intend to use in judging millions of others. This is based on assumption and cannot be true. Humans are not robots. This wishful thinking has been proven to be wrong and that humans are not atoms. On this note, it is therefore lucid that any attempt to discuss development for Africa using the discipline of economics naturally runs into serious problems since they are technically aimed to under-developing Africa from default. It is therefore critical for Africans themselves to disclose other indigenous models of development for themselves and by themselves. This, perhaps, may be the focus of another further research.

References

- Ake, C. (1981), *A Political Economy of Africa*, Ibadan: Longman Nigeria Plc.
- Alozie, P. (2004), *Philosophy of Science*, Calabar: University of Calabar Press.
- Cayne, B.S., (Ed.) (1992), *The New Webster's Dictionary of the English Language*, New York: Lexicon Publishers.
- Hayek, F.A. (1952), *The Counter-Revolution of Science, Studies on the Abuse of Reason*, New York: The Free Press, Macmillan Publications Co.
- Heilbron, J.L. (Ed.) (2003), *The Oxford Companion to the History of Modern Science*, New York: Oxford University Press.
- Jaffe, K. (2010), *What is Science?: An Interdisciplinary Perspective*, Langham, Maryland: University Press of America.
- Jaffe, K. (2014), "Social and Natural Sciences Differ in Their Research Strategies, Adapted to Work for Different Knowledge Landscapes," **in *National Library of Medicine*** Published online on the 26th November 2014. doi: [10.1371/journal.pone.0113901](https://doi.org/10.1371/journal.pone.0113901)
- Lindsay, D. (1989), "Using Citation Counts as a Measure of Quality in

- Science Measuring What's Measurable Rather than What's Valid," *Scientometrics* 15: 189-203.
- Negedu, I. (2014), "Metaphysical Implications of Scientific Naturalism," in M. Asiegbu, J.D., Chukwuokolo (eds.), *Frontiers of Knowledge in Philosophy: Cutting Edge Issues*, Enugu: Jones Communication Publishers.
- Nzimiro, I. (1977), *The Crisis in the Social Sciences: The Nigerian Situation*, Oguta: Zim Pan African Publishers.
- Ofuasia, E. (2022), "Why the Externalist-Internalist Distinction over the African Development Discourse is a Dead End?" *Arumaruka: Journal of Conversational Thinking*. 2(1): 1-23
<https://dx.doi.org/10.4314/ajct.v2i1.1>
- Ozoigbo, B.I. (2016), "African Theories of Development and the Reality of Underdevelopment," *International Journal of Development and Economic Sustainability*. Vol 4(4): 12-9.
- Popper, K.R. (1959), *The Logic of Scientific Discovery*, London: Routledge and Kegan Paul.
- Priyadarshini, S. (2012), "Essay on Keynes' Theory of Money and Prices," retrieved from <http://www.preservearticles.com/2012020322560/essay-on-the-keynes-theory-of-money-and-prices.html> on the 18th April, 2021 at 4.23 a.m.
- Rodney, W. (1971), *How Europe Underdeveloped Africa*, Dares Salaam: B'ogle Overture
- Rostow, W.W. (1960) *The Stages of Economic Growth: A Non-Communist Manifesto*, London, Cambridge University Press.
- Saffra, P. (Ed) (1973), *The Works of David Ricardo*, Vol. 1.
- Smith, A. (1980), *An Inquiry into the Nature and Causes of Wealth of Nations*, New York: Modern Library.
- Wilson, E.O. (1999), *Consilience: The Unity of Knowledge*, New York: Viking.