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OLUWOLE OWOYE

Western Connecticut State University, Owoyeo@wcsu.edu

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The Economic Analysis of Conflicts and Peace in Autocratic and Democratic Regimes in Africa

1. Introduction

Since many African countries became independent, there has been a tremendous attention paid to the rising level of conflicts within and between countries in the African continent. The rising level of conflicts also led to the establishment of many institutions [e.g. Africa Center for Strategic Studies (ACSS), African Centre for the Constructive Resolution of Disputes (ACCORD), World Bank's Armed Conflict Location and Event Date (ACLED), and the Institute for Security Studies] dedicated to studying those issues plaguing the African continent such as the upsurge in its conflicts and on how to help people to peacefully resolve conflicts within and between countries in Africa. This paper utilizes conceptual economics to explain the relationship between conflicts, peacebuilding as well as economic growth and development as many African countries gradually transitioned from autocratic to democratic regimes. The consensus among research scholars is that autocracy and democracy are two contrasting and distinct forms of governance and that the fundamental differences can be found in the processes through which executive power is acquired and transferred, how political power is exercised and controlled, the definition and preservation of social order, and the influence of public interests and opinions on the autocratic and democratic institutions of governance. Despite these primary differences, both autocratic and democratic forms of governance are often perceived to be comparably stable and effective in maintaining social order in the developing world.

One of the major shortcomings in social sciences research is that the theories of conflicts, collaborative-peace or peacebuilding, and economic development have largely evolved in isolation from one another even though they are intertwined. Economists consider conflicts and peacebuilding as two socio-political "goods and services," which are characterized by positive and negative externalities. Both conflicts and peacebuilding have contagion effects in many countries worldwide, and in some cases, local conflicts have morphed into national conflicts, then regional conflicts, and into global conflicts in the form of international terrorist attacks. Conceptually, the monotonicity of the conflicts and peacebuilding functions are invariant to forms of governance in Africa. Furthermore, it is impossible for any country in Africa and elsewhere to avoid short-run and long-run socio-cultural or religious and political conflicts. One of the main assertions of this study is that whether or not we have stable autocratic and/or democratic forms of governance, prolonged conflicts will have a negative impact on sustainable economic growth and development in Africa. In addition, we found no statistically significant difference in the level of peacefulness between those African countries

who invested money and manpower in establishing the Truth and Reconciliation Commissions (TRCs) and those who did not use TRCs as the means with which to foster national unity.

The rest of this paper is organized as follows. Section 2 discusses some of the causal or trigger factors in conflicts and peacebuilding in Africa. Section 3 uses theoretical marginal analysis used in economics to show that there are different groups of countries in Africa with respect to their optimal choice or combinations of conflicts and peace. Section 4 provides data evidence to show the relationship between conflicts and economic growth in Africa since the 1950s during which many countries transitioned from autocratic to democratic regimes. Section 5 concludes with some policy implications and recommendations.

2. The Causal Factors and Trends in Conflicts and Peacebuilding in Africa

The general consensus among the studies of global conflicts is that the countries in Sub-Saharan Africa (SSA) and the Middle East and North African (MENA) carry the largest conflict-burden per population. Given the arbitrary national borders that emerged from the scramble for Africa in the 1880s, one could easily surmise that these conflicts were related to border disputes between countries since many different ethnic nationalities that belonged to different geographical space were arbitrarily grouped together as a nation. Contrary to expectations, these conflicts are generally within and not between countries. Conflicts in African countries have economic, political, and social underpinnings with such reinforcing effects that it is virtually impossible to separate conflicts driven by economic factors from the social and political conflicts. Arguably, extreme poverty or income inequality is one of many contributing factors to conflicts in African countries. The general consensus among growth economists and the World Bank is that households who live on less than the international benchmark of \$1.25 per day are considered to live under extreme poverty, and that this tends to exacerbate income inequality and thus lead to internal social and violent political conflicts [see Bundervoet (2013)].

Another factor that contributed to conflicts in African countries was the gradual transition from autocratic form of governance that permeated the continent in 1960s until the early 1990s. Between 1960 and 1990, there was the struggle for leadership, power, and the control of natural resources by the greedy political leaders and warlords. During this period, nearly all African countries witnessed military incursions into the position of power. Political and social scientists considered this era in African history as the period of armed military conflicts through various successful, attempted, planned or plotted, and alleged coups d'état. It is important to point out that during this period, many military leaders in African countries used the "alleged" category of coups d'état to eliminate perceived enemies within and outside the military establishments. The coups d'état era of the later part of the 20th century was the period of confused political ideologies, which could be construed as democratic deficit, thus armed military conflicts pervaded the African continent

and many economies deteriorated because their scarce economic resources were diverted into the importation and provision of more military weapons instead of the essential capital goods and/or consumer goods needed for sustainable economic growth and development.

Many African countries succeeded in sustaining armed military conflicts because of the higher unemployment rates among the very young population [see Blattman and Annan (2010)]. In countries such as Burundi, Liberia, Sierra Leone, and Uganda, these large pools of unemployed youths became child soldiers – the source of recruitment in the proliferation of armed conflicts. Armed military conflicts fueled by greedy warlords and political leaders quickly spread across Africa. Collier and Hoeffler (1998), in their empirical research at the World Bank, identified two potential categories of determinants of violence: greed and grievances. With respect to greed, Collier and Hoeffler (1998) argued that profit or rent-seeking political leaders would induce violence as a way to gain control over sources of wealth and looting, which are then used to finance more armed conflicts. For grievances, Collier and Hoeffler pointed out that grievances could be associated with the differences in ideological principles, cultural differences, religious hatred, ethnic fragmentation, inequality, social exclusion and alienation, and therefore the desire for retaliation and revenge.

There are other explanations put forward for the ceaseless conflicts in some regions in Africa: repeat violence, neighborhood effect or conflict contagion. With repeat violence, the argument is that those African countries or regions that once experienced large scale violence may become desensitized to conflicts; therefore, the tendency for repeat violence is very strong. As for neighborhood effect of regional conflict contagion, neighboring countries in conflict-ridden regions tend to be drawn into the conflicts, either by becoming refugee camps on humanitarian grounds or through the organized regional peace-keeping efforts. There were many regional peace-keeping organizations such as the West African Economic Community Monitoring Group (known as ECOMOG) that were established in 1990 to intervene in the 1989-1996 civil wars in Sierra Leone. There were cases in which the regional peace-keeping organizations were directed by the United Nations peace-keeping efforts.

Given the new era of globalization, exportations and importations of conflicts are the new global phenomenon through terrorist attacks. Recently, De Janvry and Sadoulet (2016) pointed out that the Global Terrorism Database at the University of Maryland showed that the number of attacks by groups connected with Al-Qaeda and the Islamic State increased from 200 per year over the period 2007-2010 to 600 in 2013. It is important to note that these international terrorist groups are now establishing bases in many parts of Africa, which means that an end to the global armed conflicts may not be insight if the African continent, with its weak institutional structures, becomes the safe haven for different terrorist groups.

Finally, it is important to point out that there are two additional sources of violent conflicts between communities in towns, states, and countries in Africa that are rarely mentioned in the conflict literature or given any scholarly debate. These are national land tenure reforms and enforceable property rights, and both are related. Worldwide, Africa is known as an agrarian continent where land ownership and tenure still remained very controversial because of the variations across communities, states, and countries; therefore, controversial land tenure reforms create tensions and conflicts between those who lose and those who gain from these land redefinitions or redistributions. In Africa, Egypt, Ethiopia, Kenya, Namibia, South African, and Zimbabwe have a semblance of meaningful land tenure reforms in order to address the violent conflicts between communities over land ownership. Another issue is the effective enforceable property rights, which are not well defined in many African countries, thus the existence of violent conflicts between communities and regions. Boone (2007) provided a detailed discussion on land tenure reforms in Africa and the future of the African continent.

3. The Theoretical Analysis of Conflicts and Peace

This paper asserts that countries worldwide cannot avoid socio-cultural-political conflicts and peace; therefore, we assume that conflicts and peace are two politically normal or non-complementary goods that countries experience in varying proportions. In other words, we assert that the optimal combination of conflicts and peace varies among countries based on the reality that some African countries (Burkina Faso, Ethiopia, Mali, Nigeria, Somalia, South Sudan) today are more conflict-ridden with little room for peace, while other African countries experience more peaceful environment with less conflicts, and others are indifferent between both. To illustrate the varying optimal combinations of these two naturally and/or politically normal goods, we assume that each African country's utility or objective function (U) with respect to its socio-cultural-political conflicts (K) and peace (P) can be expressed as:

$$U_i = f(K_i, P_i) \quad (1).$$

subject to the linear budget-cost constraint

$$k_i K_i + p_i P_i = Y_i \quad (2),$$

where k_i and p_i represent the prices/costs of K_i and P_i , thus $k_i K_i$ and $p_i P_i$ are the total expenditures or costs of socio-cultural-political conflicts and peace, respectively; and Y_i is the gross domestic product in each country i . It is important to note that the data on the economic cost of violence reported in Appendix A showed that 52 out of 54 African countries spent between 3 to 57 percent of their GDP on conflicts.

Growth economists could image what the impact would be on economic growth and development if African countries invest the same amount on education and the maintenance of their health care infrastructures, which could be viewed as the worst in comparison to other developing countries worldwide. If we assume that both conflicts and peace entail substantial expenditures, then we can interpret

$\frac{k_i K_i}{Y_i}$ and $\frac{p_i P_i}{Y_i}$ as the proportions of national income devoted as expenditures on conflicts and peace in each African country, respectively, and that these vary across African countries depending on whether the country is conflict-ridden or peace-loving or conflict and peace neutral.

The Lagrangian function for a constrained maximization or a constrained minimization problem with the utility or objective function $f(K_i, P_i)$, given in equation (1) subject to the linear budget-cost constraint that $k_i K_i + p_i P_i = Y_i$ given by equation (2), can be expressed as:

$$L(K_i, P_i, \lambda) = f(K_i, P_i) - \lambda(k_i K_i + p_i P_i - Y_i) \quad (3)$$

where all variables are as defined earlier, and λ is the Lagrange multiplier. Solving the constrained optimization problem corresponding to the Lagrangian function given in equation (3) involves the solution to a system of equations, which includes the first-order conditions for the Lagrangian function with respect to each of the argument variables of the utility or objective function and the linear cost constraint. That is:

$$\frac{\partial L(K_i, P_i, \lambda)}{\partial K_i} = f'(K_i) - \lambda k_i = 0, \text{ and } \lambda = \frac{f'(K_i)}{k_i} \quad (4),$$

$$\frac{\partial L(K_i, P_i, \lambda)}{\partial P_i} = f'(P_i) - \lambda p_i = 0, \text{ and } \lambda = \frac{f'(P_i)}{p_i} \quad (5),$$

and

$$\frac{\partial L(K_i, P_i, \lambda)}{\partial \lambda} = k_i K_i + p_i P_i - Y = 0 \quad (6).$$

Solving to remove λ in the first-order conditions derived in equations (4) and (5) yields:

$$\frac{f'(K_i)}{k_i} = \frac{f'(P_i)}{p_i} \quad (7),$$

and rearranging this relationship to obtain the optimal or ideal conflict (K_i^*) level and peace (P_i^*) ratio, we have

$$\frac{K_i^*}{P_i^*} = \frac{f'(P_i)}{f'(K_i)} = \frac{p_i}{k_i} \quad (8).$$

The optimal conflict (K_i^*) and peace (P_i^*) levels vary across African countries. To highlight these variations, let us assume that there are three groups (A, B, and C) of countries. For simplicity in exposition, we assume that Group A consists of countries who are averse to conflicts but peace-loving; Group B consists of countries that can be classified or considered as conflict and peace neutral overtime; and Group C consists of the most conflict-ridden countries with less peace. These groups of countries are depicted in Figure 1 in which the amount of conflicts (K) is

measured along the vertical axis and the amount of peace (P) is measured along the horizontal axis. The feasible sets in this diagram are represented by the lines FF , which shows the combinations of K and P , say from the 1960s to the early 1970s; and $F'F'$, which shows the combinations of K and P , say from the 1980s to the current period. It is important to note that points along lines FF and $F'F'$ satisfy the budget/cost constraint specified in equation (2). The slope of the conflict-peace budget/cost lines (FF and $F'F'$) is the ratio of the cost/price of conflicts relative to peace in each African country. That is,

$$\frac{dK_i}{dP_i} = \frac{p_i}{k_i} \quad (9)$$

The indifference curves U_A , U_B , and U_C , based on equation (1), represent the combinations of conflicts and peace that these three groups of countries experienced in 1960s and early 1970s, while the indifference curves U'_A , U'_B , and U'_C represent the combinations of conflicts and peace since the 1980s. Lines OA for Group A, OB for Group B, and OC for Group C represent the conflicts-peace expansion path as each group of countries transitioned from either autocratic to democratic regime since the 1990s or maintained the same form of governance since the 1960s. Furthermore, combinations K_A , P_A for Group A; K_B , P_B for Group B; and K_C , P_C for Group C are chosen based on the principle of equal marginal

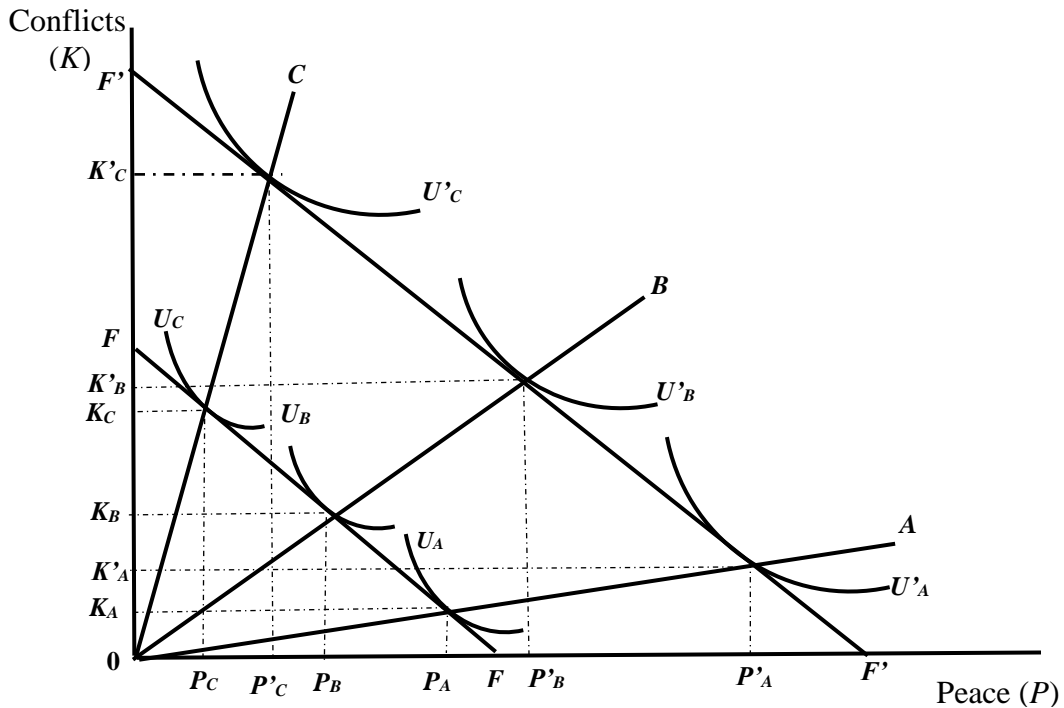


Figure 1: Constrained Optimization with Conflict-Peace Budget Lines and Indifference Curves

utility (MU) per dollar, that is, these are the points where the marginal utility of conflicts (MU_{K/k_i}) and the marginal utility of peace (MU_{P/p_i}) are equal. These are indicated by the points where U_A , U_B , and U_C are tangent to line FF ; and U'_A , U'_B , and U'_C are also tangent to line $F'F'$. The increase in combinations from K_A , P_A to K'_A , P'_A for countries in Group A; K_B , P_B to K'_B , P'_B for countries in Group B; and K_C , P_C to K'_C , P'_C for countries in Group C reflect the rise in both conflicts and peace as their national income or gross domestic products increased over the years.

Simply put, we let K^* and P^* be the “naturally normal” goods are parts and parcels of a country’s socio-political environment or structure. We use the term “naturally normal” to explain the consumption of conflict and peace because they are existential with respect to human history. According to MacGinty and Williams (2016), conflicts and peace are parts and parcels of human existence. In microeconomics, goods are considered to be normal if the consumption or quantity demanded increased as income increased, and are considered inferior if the quantity demanded decreased when income increased.

For the purpose of illustration, it is important to note that for the conflict-ridden or conflict-preferred countries in Group C, it is possible for P'_C to be less than P_C (that is, $P'_C < P_C$) as gross domestic products increased because the profiteering warlords and greedy political leaders can exacerbate conflicts as they view conflicts to be the avenues for political power and control, rent-seeking, monetary gains, and wealth accumulation. It is also possible for the peace-loving countries in Group A to experience less conflicts as national income or gross domestic products increased, that is, $K'_A < K_A$ because of the conflict resolution mechanisms already established based on past experience. As economic theory suggests, when the demand for a good decreased as income increased, the good is considered to be an inferior good. Applying this concept here therefore means that for conflict-ridden countries, if $P'_C < P_C$ when national income increased, then peace is an inferior good for countries in Group C; and for the peace-loving countries in Group A, if $K'_A < K_A$ when their national income increased, then conflict is an inferior good. This is also applicable for the conflict-peace neutral countries.

3.1. The Impact of Conflicts on Social Welfare and Development in Africa

This section draws from the concepts of social welfare economics articulated by many economists such as Arrow (1950, 1951), Rawls (1972), Deaton (1997), Lambert (1993), and Champernowne and Cowell (1998), which can be found in very detailed coverage in any standard intermediate microeconomics textbook. To show the impact of conflicts on economic welfare in African countries, we utilize the simple concept from welfare economics in which the social welfare function (W) in each African country is assumed to take the form:

$$W_i = W_i [K_i, P_i, G_i(E_i)] \quad (10)$$

where G_i represents all capital goods and consumer goods that are essential to sustainable economic growth and development, E_i represents the economic-social-

political environment in which all the capital goods and consumer goods are produced, while K_i and P_i are as defined earlier in equations (1) and (2). Arguably, it is impossible to attain the optimal social welfare in conflict-ridden countries because of endless socio-political conflicts with little or no peace. Algebraically:

$$\frac{\partial W_i}{\partial K_i} \leq 0 \quad (11),$$

$$\frac{\partial W_i}{\partial P_i} \leq 0 \quad (12),$$

and

$$\frac{\partial W_i}{\partial G_i} \frac{\partial G_i}{\partial E_i} \leq 0 \quad (13).$$

Interpretatively, equation (13) shows that social welfare deteriorates in conflict-ridden and less peaceful environments, that is, $\frac{\partial W_i}{\partial G_i} \frac{\partial G_i}{\partial E_i} \leq 0$. In other words, in

unstable environments where scarce economic resources such as physical capital and human capital are deployed to execute civil or regional wars in conflict-ridden regions, the usual outcome is a drastic reduction in the production of the essential capital goods and consumer goods necessary for sustainable economic growth and development. In contrast to the deterioration of the social welfare that we normally observe in many conflict-ridden regions in Africa, $\frac{\partial W_i}{\partial G_i} \frac{\partial G_i}{\partial E_i} > 0$ in conflict-free, stable

and more peaceful regions where scarce economic resources are optimally utilized in order to improve social welfare. Simply put, if countries do not have to divert their scarce economic resources to execute civil wars and other political conflicts, the production of more capital goods and consumer goods will improve the standards of living.

To show the impact of conflicts on economic growth and development in Africa, we utilize the aggregate production function, which is expressed as:

$$Y_i = T_i K_i F(H_i, L_i) \quad (14),$$

where Y_i is the gross domestic product, T_i is the level of technology, K_i is the level of conflicts as defined earlier, while H_i and L_i are the amount of physical capital and labor, respectively. In the real world, armed conflicts in many African countries altered the utilization of capital and labor in the production of goods and services. Expressing equation (14) in per-worker terms, we have:

$$y_i = T_i K_i f(h_i) \quad (15),$$

where y_i is output per-worker $\left(\frac{Y_i}{L_i}\right)$, h_i is capital per-worker or capital-labor ratio

$\left(\frac{H_i}{L_i}\right)$. Equation (15) states that the level of output per-worker (y_i) in any African country depends on the capital-labor ratio used in the production process; and that this worker productivity is influenced positively by the level of technology (T_i).

The consensus among economic growth theorists is that technology, which could be in the form of product-innovations and process-innovations, shifts the per-worker production function upward as shown in Figure 2. The question is: What impact do armed military conflicts (K_i) have on the per-worker production function with respect to Africa as depicted by equation (15)? In Figure 2, we show that the level of technology (T_i) in Africa shifts the per-worker production function upward, from y_0 to y_1 , as predicted by economic theory, but not by the same magnitude if compared to other developed continents where technology is far more superior. Based on the real world experience in the African continent, one can argue that armed conflicts (K_i) have negative impact on per-worker productivity and the standards of living, thus the movement downward from point V to point X because of the deployment of scarce economic resources such as physical capital and human capital to execute civil or regional wars in conflict-ridden regions. Eventually, this contributed to decreasing the standards of living from $y_{0|k=0}$ to $y'_{0|k>0}$. Worst, many

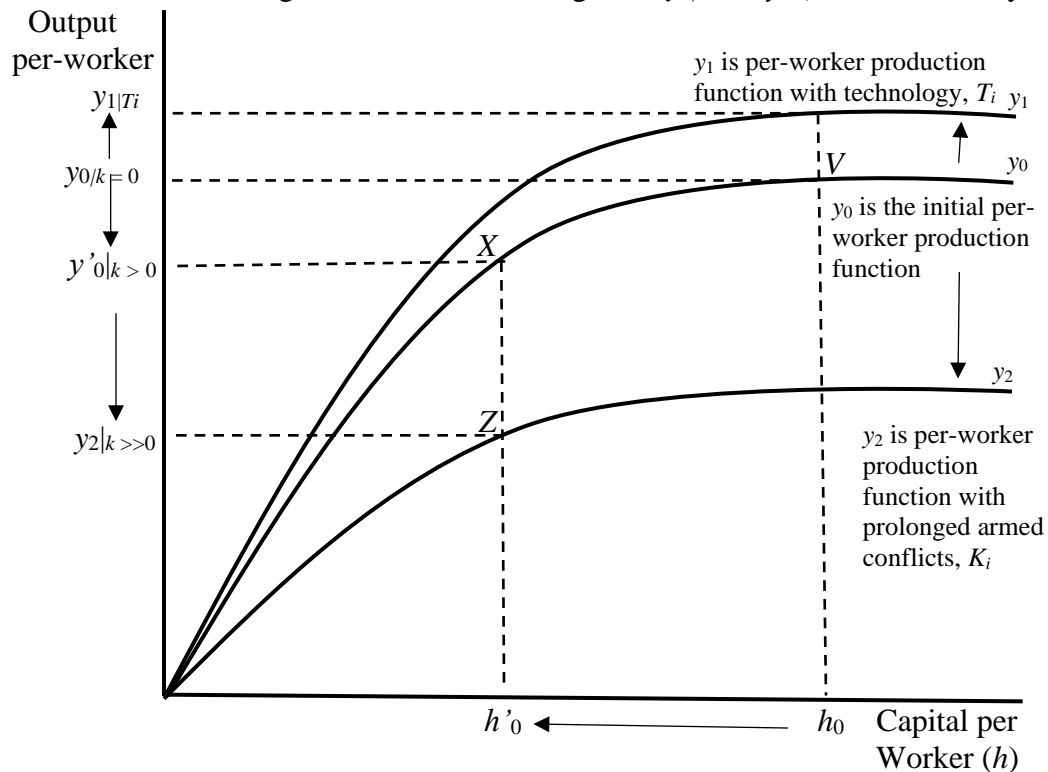


Figure 2: The Impact of Conflicts on Per-Worker Aggregate Production Function

African countries experienced endless armed conflicts in the 1980s and 1990s as captured by the downward shift in the per-worker production function from y_0 to y_2 , which led to further deterioration in the standards of living as $y'_0|_{k>0}$ further declined to $y_2|_{k>0}$, indicated by movement from point X to point Z, in many conflict-ridden countries. Due to destruction wars, capital per worker falls from h_0 to h'_0 .

We can also simplify this graphical illustration if we simply assume that all economic resources are used to produce two goods classified as capital goods and consumer goods. Using the simple concept of the production possibilities frontier (PPF) depicted in Figure 3, we can assume that along PPF_1 , African countries are able to achieve economic efficiency – allocative, productive, and distributive – given their current levels of technology in the absence of armed conflicts. However, several decade of armed conflicts shifted the production possibilities frontier from PPF_1 to PPF_2 , thus the economic stagnation that many conflict-ridden African countries and regions observed in the last two decades of the 20th century.

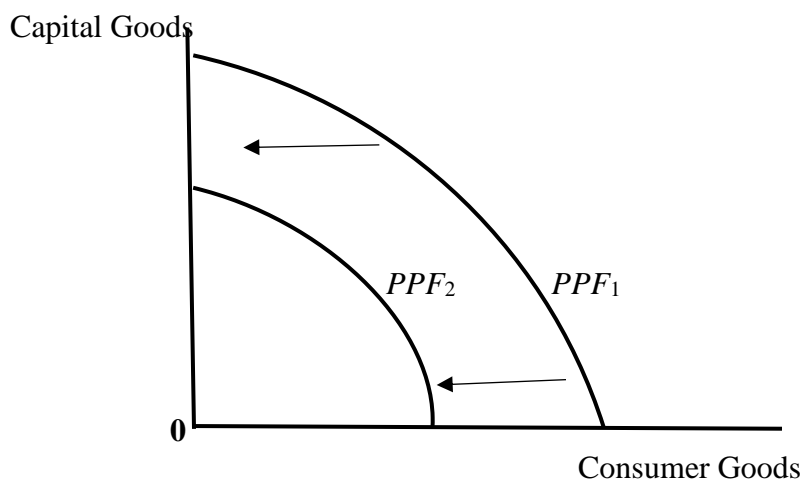


Figure 3: The Impact of Conflicts on Capital Goods and Consumer Goods

3.2. The Impact of Peacebuilding in Africa

As explained earlier, peace is an important element in social welfare maximization because sustainable economic growth and development can only be achieved during the period of sustainable peace. Since the 1970s, many African countries reported in Table 1 have used different forms of truth and justice reconciliation commissions to foster national unity. In other words, these countries provide real world evidence regarding the importance of sustainable peacebuilding in national unity or nation building. Many research scholars such as Asmal (2000), Bickford (2007), Chapman (1999), Davenport and Armstrong II (2004), Groop (2012), Howard (1996), Lerch (2000), Igbuzor (2011), and Lamony (2011) have examined the usefulness and effectiveness of these Truth and Reconciliation

Commissions (TRCs) in fostering national unity. Given the monetary and manpower invested in these TRCs along with the implementations of their recommendations, the question for empirical analysis in this section is: Are the African countries reported in Table 1 significantly better than their non-TRCs counterparts?

To answer this question, we compare African countries that used TRC with their non-TRC counterparts by examining their Global Peace Index (GPI) scores. The Global Peace Index (GPI) Score, published by the Institute of Economics and Peace, uses the GPI, which ranges between 1 and 5 to measure the magnitude of peacefulness in a nation. Interpretatively, a GPI = 1 means most peaceful and a GPI = 5 means least peaceful. We test the null hypothesis that the TRC countries are not better than their non-TRC counterparts against the research or alternative hypothesis that the two groups differ with respect to peacebuilding and national unity. *A priori*, one can argue and conclude that the TRC-African countries identified in Table 1 would be more civil and peaceful than the non-TRC African

Table 1: African Countries with TRCs

Country	Year Established	Year of Report Completion
Uganda*	1974	n.a.
Zimbabwe	1985	n.a.
Uganda*	1986	n.a.
Chad	1990/2002†	1992
Rwanda	1990	1993
Ethiopia	1993	n.a.
Burundi	1995	n.a.
South Africa	1995	1998
Nigeria	1999	2002
Sierra Leone	1999	2004
Central African Republic	2002	n.a.
Ghana	2002	2004
Democratic Republic of Congo	2002	2007
Morocco	2004	2005
Liberia	2005	2010
Kenya	2008	2012
Mauritius	2009	2011
Togo	2009	n.a.
Tunisia	2014	n.c.

Sources: Compiled by the author from various studies, including Wikipedia; see

https://en.wikipedia.org/wiki/List_of_truth_and_reconciliation_commissions

Note: n.a. = not available, n.c. = not completed, † = TRC made permanent in 2002 in Rwanda, and * = country with more than one TRC and contemplating to establish another TRC. There are 19 countries in the TRC group.

countries based on the fact that the former group of countries would have benefited from using TRCs as instruments in fostering national unity. According to the data and graphical evidence provided by Wisevoter (2023) and the World Population Review (2023), many African countries are still experiencing conflicts from different dimensions (see African countries identified with † in the table provided in Appendix A).

The estimated mean of the Global Peace Index Scores was 2.291 for 19 African countries that had TRC while the estimated mean was 2.260 for the 31 non-TRC African countries with the mean difference of 0.031, given N to be 50 (excluding Cape Verde, Comoros, Sao Tome and Principe, and Seychelles due to unavailable data) with $df = 19+31 - 2 = 48$. The estimated t -value of 0.221 implied statistical insignificance. Based on the estimated results, we fail to reject the null hypothesis of no difference between the TRC-African countries who invested in peacebuilding and national unity through the establishment TRCs and the non-TRC African countries. This result supports those who questioned the veracity and usefulness of these TRCs in African countries because those countries who invested money and manpower in TRCs are not significantly better in terms of peacebuilding than the non-TRC African countries. In effect, peacebuilding through TRCs has not contributed to more peaceful African countries, and according to Christine (2000: pp. 173-175), TRCs may be considered as therapeutic.

4. Evidence of the Impact of Armed Military Conflicts on Economic Growth in Africa

In this section, the focus is on armed military conflicts because one can easily classify countries by the level of intensity in military conflicts since the 1950s. Before the recent waves of “democratization,” the African continent was known for its armed military coups d’état some of which were successful, attempted, planned, and alleged coups. For simplicity, we let SAPAC be the combinations of the successful (S), attempted (A), planned (P), and alleged (A) coups d’état (C); therefore, we classify the 54 African countries into three categories of *frequency* with respect to SAPAC: *low-frequency*, *medium-frequency*, and *high-frequency*. Some African countries are considered to be *low-frequency* SAPAC countries when SAPAC is between 0 and 15; *medium-frequency* SAPAC countries when SAPAC is between 16 and 45; and *high-frequency* SAPAC countries when SAPAC is equal to or greater than 46. As Table 2 shows, there were 27 African countries with *low-frequency* SAPAC, 20 African countries with *medium-frequency* SAPAC, and seven African countries with *high-frequency* SAPAC.

To show the relationship between conflicts and economic growth in Africa decade by decade since the 1950s, we provide the data in Table 3. As one can see from the data compiled in Table 3, the growth rates in Africa as a whole were much higher between the 1950s and 1960s and then peaked in the 1970s, and sharply decreased thereafter as armed military coups d’état intensified and became

contagious and much protracted. The growth rates first became negative in the 1980s and then turned out to be five times more negative in the 1990s as armed military coups d'état escalated throughout Africa – an era now dubbed the lost two decades of the 20th century. A time-series diagram (not shown here) of SAPAC reported in Table 3 showed an inverted U-shaped or parabolic trajectory, which means that armed coups d'état increased monotonically and peaked in the 1980s

Table 2: Level of Frequency in Armed Military Conflicts (SAPAC) by Country Groups

Low-Frequency SAPAC $0 \leq \text{SAPAC} \leq 15$	Medium-Frequency SAPAC $16 \leq \text{SAPAC} \leq 45$	High-Frequency SAPAC $46 \leq \text{SAPAC} \leq 75$
1. Botswana	1. Rwanda	1. Guinea-Bissau
2. Cape Verde	2. Somalia	2. Burundi
3. Egypt	3. Madagascar	3. Benin
4. Eritrea	4. Equatorial Guinea	4. Sierra Leone
5. Mauritius	5. Mali	5. Ghana
6. Morocco	6. Lesotho	6. Uganda
7. Namibia	7. Niger	7. Sudan
8. South Sudan	8. Congo, Dem. Republic	
9. South Africa	9. Côte d'Ivoire	
10. Senegal	10. Guinea	
11. Malawi	11. Ethiopia	
12. Mozambique	12. Comoros	
13. Cameroon	13. Congo	
14. Libya	14. Chad	
15. Seychelles	15. Mauritania	
16. Angola	16. Burkina Faso	
17. Djibouti	17. Liberia	
18. Gabon	18. Central African Republic	
19. Kenya	19. Togo	
20. Zimbabwe	20. Nigeria	
21. Tanzania		
22. Tunisia		
23. Swaziland		
24. Zambia		
25. São Tomé & Príncipe		
26. Gambia		
27. Algeria		

$N = 54$

Source: Coup d'état data was primarily sourced from "Conflict Trends in Africa (Marshall) Coups d'Etat in Africa, 1946-2004" (See Africa Atlas—Infoplease.com at <http://www.infoplease.com/atlas/africa.html#ixzz28yNjuupY>) and updated from 2004 to 2012 based on the African Development Bank article "Political Fragility in Africa: Are Military Coups d'Etat a Never-Ending Phenomenon?" by Habiba Ben Barka and Mthuli Ncube (September 2012).

Note: Countries in each group are not listed in the order of magnitude, and N is the number of countries in Africa.

Table 3: The Relationship between Armed Conflicts and Growth in Africa, 1950-2014

Decades	SAPA	Average Growth Rates ^a
1950s	3	1.62
1960s	46	1.78
1970s	56	1.94
1980s	84	-0.02
1990s	77	-0.10
2000s	29	2.36

Source: Same as in Table 1 above.

^a = Average growth rates decade by decade computed by the author based on the data obtained from various sources, particularly from Angus Maddison (2010), *Historical Statistics of the World Economy*, Paris: Organization of Economic Cooperation and Development.

and then decreased monotonically as many African countries transitioned from autocratic forms of governance and started to embrace democratic ideals in the later part of the 1990s and 2000s. In contrast, average growth rates in Africa reported in Table 3 showed positive growth rates over the 1950-1970 period, and thereafter, growth rates turned negative in the 1980s and 1990s as SAPAC peaked.

Now that democratization started to take a stronger foothold in the African continent, countries are now experiencing what apparently is a remarkable positive turnaround in economic growth and development since the 2000s. The relationship between economic growth and armed military conflicts in Africa depicted by the cursory visual data evidence in Table 3 is captured by estimating a correlation-regression equation of the form:

$$y_{it} = \beta_0 + \beta_{it}SAPAC_{it} + \varepsilon_{it} \quad (16)$$

where y_{it} captures the annual growth rates and $SAPAC_{it}$ measures conflicts as defined earlier in all African countries in year t , respectively; β_0 and β_{it} are the intercept and slope parameters to be estimated; and ε_{it} is random error term.

The econometric estimation of the relationship between y_{it} and $SAPAC_{it}$ in Africa, depicted in equation (16), showed the correlation coefficient (ρ) to be -0.74. The estimated β_0 is 2.532 while the estimated β_{it} coefficient is -0.026 and the absolute value of the t -ratio is 2.21. In addition, the estimated coefficient of determination or variation (R^2) is 0.549 at $\alpha = 0.05$ level of significance. This estimated result is highly stable across specification and data sets, meaning that one can confidently conclude that armed violent/military conflicts played an important negative role in explaining Africa's economic growth and sustainable development between 1950s and 2000s.

4.1. Externalities from Conflicts and Peacebuilding in Africa

At this point, it is important that we elaborate on the positive and negative externalities that could be associated with conflicts and peace. As we pointed out

with respect to the optimal mix of conflicts and peace, the peace-loving countries in Group A will still experience or choose some levels of conflicts as their national income increased. In other words, some African countries will experience more conflicts that are not necessarily violent conflicts. This means that some non-violent conflicts such as those inevitable socio-political conflicts may actually have positive externalities. For example, one cannot simply view socio-political conflicts from the prisms of hostility and/or antagonistic opposition because there is the potential of bringing together many opposing socio-political powers in order to solve the underlying socio-political problems. When socio-political conflicts force opposing socio-political powers into meaningful dialogues at the local, state, and national levels, societies will benefit from the outcomes of those dialogues, thus a more peaceful socio-political environment. Furthermore, one cannot underestimate the fact that armed military conflicts cause negative externalities, not only in terms of the loss of lives, but also the destructions of private properties, public infrastructures, security, and national trust.

In contrast, one can also argue that there are some positive externalities, especially with respect to technological innovations, which can be instrumental in minimizing the effects of current armed conflicts or reduce future conflicts. For instance, the use of electronic surveillance and body camera scans intensified globally at domestic and international airports because of the threats from international terrorist attacks or conflicts, which are now globally contagious. Furthermore, the Iron Dome used by Israel to shield itself against launched rockets and artillery shells can be viewed as positive externalities from its prolonged conflicts with its Arab neighbors. In other words, national and international armed conflicts, even though costly, can be viewed as necessitating factors in technological changes thus the positive externalities.

Similarly, one can argue that there are positive and negative externalities associated with peacebuilding efforts. Obviously, peacebuilding is the bridge required to regain the lost national trust between two or more opposing parties after violent conflicts, as well as bringing back the sense of national security/unity needed in those conflict-ridden environments. Peacebuilding can also enhance the efficient transactions not only at the local, state, and national levels, but also at the international levels, especially with respect to international trade and global tourism. By the same token, peacebuilding through the establishments of the Truth and Reconciliation Commissions (TRCs) that many African countries experienced since the 1970s and 2000s can also cause negative externalities if there are too many administrative bureaucracies, no transparencies, and no accountabilities with respect to the findings of these TRCs [see Lamony (2011)].

For example, many Nigerians still questioned the veracity of the Oputa Panel of 1999 (also known as the Human Rights Violations Investigations Commission) because of its lack of accountability, true transparency and the truthfulness or

sincerity of the participants who testified at the hearings. As a result, neither the commission's findings have been officially made public nor carrying out the implementation of any of the suggestions or proposals contained in the final report. Simply put, the Oputa Panel of 1999, as a TRC, may be counterproductive in unifying Nigerians.

The result could be different from the Rwandan National Unity and Reconciliation Commission, which was also established in 1999 – the same year as the Oputa Panel – and the TRC of South Africa in 1995. Given that the Global Peace Indexes for Rwanda (2.323) and South Africa (2.316) differed from that of Nigeria (2.877), one can erroneously argue and conclude that the TRCs in Rwanda and South Africa may have succeeded in unifying some of the opposing forces within both countries thus minimizing the incidence of armed conflicts better than Nigeria. However, the empirical test conducted with respect to no difference or difference between the TRC countries and non-TRC countries refutes such argument or conclusion. According to MacGinty and Williams (2016), the Rwandan TRC's "effectiveness has been less than impressive in terms of the numbers of those brought before it or punished." Also, they pointed out that "The post-Apartheid crime figures in South Africa (where hundreds of white farmers have been killed and yet the country has one of the highest murder rates of any country on the planet) suggest a society ill at ease with itself."

5. Conclusions and Policy Implications

In this paper, we employed different economic concepts to show that armed conflicts and peace are two existential naturally-normal goods that countries in Africa must choose optimally if the objective is to be on the frontiers of sustainable economic growth and development. Certain categories of conflicts are not avoidable because they confer positive externalities while others such as prolonged armed military conflicts confer negative externalities on society at large. Since armed military conflicts varied across African countries, we classified these countries into three groups based on the intensity of armed military conflicts: low, medium, and high. Based on this classification, we found out that about half of African countries experienced low-intensity armed military conflicts while the other half experienced medium to high-intensity armed conflicts since the 1950s. We found that armed military conflicts increased monotonically between the 1950s and 1970s and peaked in the 1980s and then decreased monotonically thereafter.

The results of the econometric estimation of the correlation-regression that examined the relationship between armed military conflicts and economic growth in Africa showed not only high negative correlation, but that armed conflicts had negative impact on Africa's economic growth and development between 1950s and 2000s. Furthermore, we found out that more than one-third of African countries invested both money and manpower in peacebuilding efforts through the establishments of the Truth and Reconciliation Commissions since the 1970s.

Many of the conflict-ridden countries viewed TRCs as the means with which to foster reconciliation and national unity. An econometric test as to whether these countries were more peaceful than their counterparts revealed that there is no statistically significant difference between those countries that utilized various forms of TRCs and those who did not.

Given the findings that armed conflicts had negative impact on Africa's economic growth and development between the 1950s and 2000s and that the TRC African countries are not more peaceful than their non-TRC counterparts; then, Africa and its leaders must address some important issues. First, there is an urgent need to address the issue of poor leadership and governance across countries if the objective is to minimize some of the triggers such as extreme poverty, high unemployment rates of youths who may be recruited into gangs and become active participants in armed conflicts. Second, the governance structures must show complete inclusiveness, rather than one-ethnic or one-region superiority over others, in order to remove the perceptions of marginalization by certain ethnic groups because this is the only way every ethnic group can feel they have a voice in the governance structures. Third, leadership and governance must be seen as transparent and accountable to all the constituent parts. This would prevent the violent conflicts rooted in vengeance and the scramble for political power control.

Fourth, rather than waste monetary and manpower investment in establishing opaque TRCs, African leaders must invest in building trust across communities as the means to bridge the gap between different ethnic groups. Finally, given the upsurge in terrorist insurgencies plaguing the African continent (World Population Review, 2023), African leaders and their policymakers must strengthen their immigration policies in order to prevent the establishments of terrorists fortresses in Africa. This may require a two-prong approach: strong education at the local, state, and national levels in order to prevent unproductive indoctrinations of the unemployed youths; and there must be a concerted effort to form international partnerships in order to weed out the external perpetrators of armed conflicts.

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Appendix A

Table A: Dollar Costs and the Combination of Conflict and Peace in African Countries, 2019

	Country	Cost of <i>K</i> (\$ million)	Cost of <i>K</i> as % of GDP	<i>K</i> *	<i>P</i> *
1	Algeria †	63,861.0	10	2.116	2.287
2	Angola	8,902.3	5	1.626	2.087
3	Benin †	1,545.7	4	2.014	2.182
4	Botswana	4,355.5	10	1.000	1.693
5	Burkina Faso †	2,654.2	7	1.936	2.316
6	Burundi	879.1	9	2.338	2.506
7	Cape Verde	<i>n.a.</i>	<i>n.a.</i>	<i>n.a.</i>	<i>n.a.</i>
8	Cameron †	5,478.3	6	2.829	2.650
9	Central African Rep. †	1,574.5	38	3.092	3.237
10	Chad †	2,174.0	7	2.395	2.538
11	Comoros	<i>n.a.</i>	<i>n.a.</i>	<i>n.a.</i>	<i>n.a.</i>
12	Congo, Republic of the	2,797.9	9	1.823	2.343
13	Congo, Dem. Republic †	5,858.9	7	3.379	3.243
14	Côte d'Ivoire †	6,928.2	6	1.642	2.169
15	Djibouti	343.4	6	1.895	2.215
16	Egypt	55,173.9	4	2.474	2.481
17	Equatorial Guinea	889.4	3	1.403	1.891
18	Eritrea	978.0	18	1.619	2.567
19	Ethiopia †	11,560.2	5	2.714	2.526
20	Gabon	2,135.1	6	1.604	2.116
21	Gambia, The	406.2	6	1.409	1.891
22	Ghana †	3,505.4	2	1.415	1.776
23	Guinea	1,530.5	4	1.436	2.082
24	Guinea-Bissau	184.6	6	1.609	2.157
25	Kenya	6,606.3	3	2.377	2.375
26	Lesotho	954.7	14	1.805	2.131
27	Liberia	427.8	7	1.410	1.877
28	Libya †	20,615.0	22	3.262	3.258
29	Madagascar	1,531.7	3	1.416	1.905
30	Malawi	534.8	2	1.604	1.885
31	Mali †	6,575.5	14	2.677	2.729
32	Mauritania †	2,315.5	12	1.611	2.287
33	Mauritius	1,044.6	3	1.000	1.544
34	Morocco	17,921.4	6	1.865	2.057
35	Mozambique †	1,757.9	4	1.881	2.135
36	Namibia	2,426.8	9	1.201	1.861
37	Niger †	1,961.7	8	2.416	2.608
38	Nigeria †	99,068.9	8	3.120	2.865
39	Rwanda	1,433.2	5	1.840	2.049
40	Sao Tome and Principe	<i>n.a.</i>	<i>n.a.</i>	<i>n.a.</i>	<i>n.a.</i>
41	Senegal	3,034.5	5	1.419	1.824
42	Seychelles	<i>n.a.</i>	<i>n.a.</i>	<i>n.a.</i>	<i>n.a.</i>
43	Sierra Leone	604.6	5	1.415	1.820
44	Somalia †	1,865.5	38	3.292	3.302
45	South Africa	99,977.0	13	1.604	2.317
46	South Sudan †	3,026.9	41	3.310	3.447
47	Sudan †	36,354.2	24	3.083	3.043
48	Swaziland (now Eswatini)	1,030.9	9	1.403	1.934
49	Tanzania †	6,647.0	3	1.435	1.850
50	Togo †	773.9	5	1.811	2.201

Table A Continued: Dollar Costs and the Combination of Conflict and Peace in African Countries, 2020

	Country	Cost of K (\$ million)	Cost of K as % of GDP	K^*	P^*
51	Tunisia †	7,870.3	6	.759	2.090
52	Uganda †	4,958.6	5	.783	2.202
53	Zambia	2,612.2	4	.201	1.794
54	Zimbabwe	2,364.1	13	1.041	2.485

Source: Data obtained and compiled by the author from Appendix C and Appendix D of the Institute for Economics and Peace at <https://www.visionofhumanity.org/wp-content/uploads/2022/06/GPI-2022-web.pdf>

Note: (a) Countries with $0 \leq K^* \leq 1.4 = 16$; countries with $1.5 \leq K^* \leq 2.9 = 27$; and with $K^* \geq 3 = 7$.

(b) Countries with $0 \leq P^* \leq 1.4 = 0$; countries with $1.5 \leq P^* \leq 2.9 = 44$; and with $P^* \geq 3 = 6$.

† = List of African countries who are currently experiencing civil war or terrorist insurgency or civil war/terrorist insurgency or ethnic violence in 2023 – see <https://worldpopulationreview.com/country-rankings/countries-currently-at-war> or <https://wisevoter.com/country-rankings/countries-currently-at-war/>