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Globalisation and Conflict: Evidence from Sub-Saharan Africa

Carolyn Chisadza and Manoel Bittencourt

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1. Introduction

1 Stephen Pinker (2011) puts forward an interesting theory that several historical shifts in society have contributed to a decline in violence over time. These shifts include, firstly, the pacification process that is associated with societies transitioning from hunter-gatherer to state-run societies. Secondly, the civilising process that is associated with increases in urbanisation and industrialisation. Thirdly, the humanitarian and rights revolutions that are associated with decreases in violent practices such as torture, decreases in religion and race-based violence, as well as a decrease in abuse against ethnic minorities, women and children. Lastly, the extended periods of peace after World War II and the Cold War, that have been accompanied by decreases in both interstate and intrastate wars.

2 Sub-Saharan Africa's recent history of independence and conflict makes this region an ideal sample with which to test Pinker's (2011) theory. The region is characterised by countries that are only now experiencing these historical shifts, including effective governments that provide services and security for their populations, the presence of international organisations that advocate human rights' laws and assist in development programs, the proliferation of infrastructure in major cities and relatively fewer episodes of internal conflict. The ongoing debate on the causes of conflict (Arezki and Gylfason, 2013; Bezemer and Jong-A-Pin, 2013; Collier and Hoeffler, 1998; Lacina, 2006) also makes

this study relevant in regard to identifying the processes within these historical shifts that may assist in avoiding conflict in sub-Saharan Africa.

3 We contribute to the conflict debate by conducting an empirical exercise based on Pinker's (2011) theory. The challenge comes in measuring these historical shifts quantitatively. We view the historical shifts as processes that are encompassed in globalisation (economic, social and political aspects). We form a hypothesis that globalisation increases the opportunity costs of conflict such that countries prefer to engage in non-violent forms of interactions and reduce hostility within and between states. We investigate this hypotheses in 46 African countries[1] between 1970 and 2013.

4 Although Pinker (2011) covers several categories of violence, we focus this study on conflict because comprehensive measures of conflict for the period under review are more readily available for sub-Saharan Africa than data on homicide rates, rape, child abuse or hate crimes. Furthermore, conflict is one of the prime sources of increased violence in the region.

5 Pinker (2011) has come under criticisms from some reviewers for his bias towards peace, his statistical evidence, and the reliability of some of his data sources (Epstein, 2011; Stone, 2014; Hammond, 2015). We use relatively more reliable data on conflict that has been collected and made available from various reputable sources such as the Center for Systemic Peace and the Uppsala Conflict Data Program (UCDP). In addition, the evidence is based on panel data analysis, namely logit regressions with fixed effects to allow for country differences.

6 The results indicate a negative relationship between globalisation and conflict, suggesting that Pinker's (2011) theory may hold in the region. The historical shifts encompassed in globalisation create incentives that increase the opportunity cost of conflict. Countries have more to lose in terms of political allies, social gains and trade benefits. We further extend the analysis by decomposing globalisation into economic, social and political globalisation. We find that social globalisation is a relatively stronger predictor for decreasing conflict than the other two components, suggesting that social interactions play a beneficial role through migration and dissemination of information as a pacifying agent.

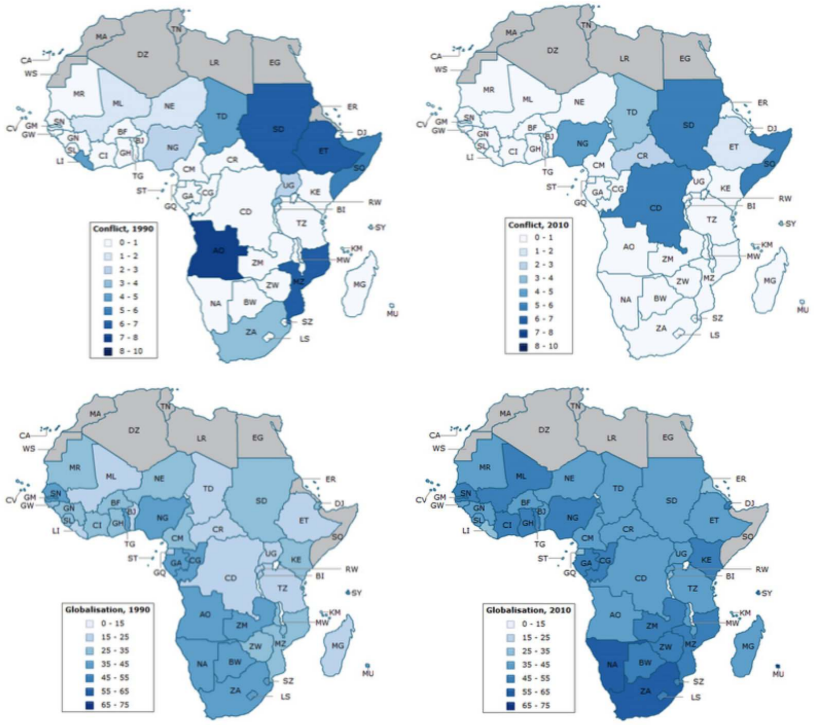
7 A brief look over the last half-century shows that sub-Saharan African countries have experienced transitions towards more open economies, as well as becoming more inclusive of social and political differences within and between countries. They have opened up their borders to foreign nationals and businesses in an effort to increase foreign direct investment, to gain expertise in policies, to increase the transfer of technology and skilled labour, and to encourage the integration of different cultures, religions and races.

8 During this period of transition, episodes of conflict—which were initially widespread across the region—have gradually decreased, significantly so in the last decade. Does this decline in conflict coincide with the increase in globalisation?

9 Figure 1 illustrates the possible trend emerging between globalisation and conflict in sub-Saharan Africa over a ten-year period. There are fewer conflict zones in 2010 than in 1990, whereas globalisation has increased significantly since 1990. It is interesting to note that countries that are surrounded by relatively stable economies are integrated more rapidly into the global economic structure than those surrounded by relatively unstable ones. For example, South Africa, which shares borders with Botswana, Namibia and

Zimbabwe, shows a more significant increase in globalisation over the decade than Sudan, which shares borders with Chad, Ethiopia and Central African Republic. This evidence suggests a possible spillover effect that deters countries from engaging in conflict for fear of losing the welfare gains associated with the trading relationships (Barbieri and Schneider, 1999).

Figure 1: Changes in globalisation and conflict between 1990 and 2010



Source: KOF Index of Globalisation (Dreher et al., 2008); Major Episodes of Political Violence (Marshall2013).

10 This paper contributes to a growing literature on the effects of openness on conflict with two contrasting views dominating the debate. The one view proposes that globalisation has a pacifying effect on conflict as it promotes economic growth and social progress through trade, migration of people and the transfer of information and technology. These factors encourage peaceful relationships amongst countries.

11 A study by Choi (2010) finds that globalisation generates a negative effect on militarised inter- state disputes by encouraging a common peaceful disposition among national leaders, who are then less likely to resort to arms in times of crisis. Barbieri and Reuveny (2005) find that economic forms of globalisation through trade, foreign direct investment and portfolio investment reduce the likelihood of civil war by increasing the opportunity costs for richer countries whereas internet use reduces the incidence of civil war only for less developed countries. Moreover, Flaten and De Soysa (2012) find that countries with a relatively higher index of globalisation have a lower risk of civil war and political repression through increased prospects for social progress. Moreover, Hegre et al. (2003, 2010) find that economic openness reduces internal conflict through its beneficial effects on growth and political stability.

12 According to Pinker (2011), by early 2000 civil wars were declining at a faster rate than new ones were taking place and he attributes this to globalisation, better governance and an increase in the number of international organisations that were initiating recovery and development programmes in conflict-ridden countries. Several studies find that openness to the global economy appears to drive down both the likelihood and the severity of civil conflict (Blanton and Apodaca, 2007; Bussman and Schneider, 2007; Gleditsch, 2008). Furthermore, evidence from Russett and Oneal (2001) shows that increased participation in the international community has contributed significantly to the drop in the number of civil wars. A study by Fortna (2008) also finds that the presence of peacekeepers reduced the risk of relapse into civil conflict by reinforcing security and acting as a barrier between the adversaries.

13 In contrast, the other view sees globalisation as increasing conflict by creating conditions that increase income inequality and poverty, as well as facilitating social breakdown because of the resistance shown by those who become oppressed. Research undertaken by Bezemer and Jong-A-Pin (2013) finds that globalisation on its own works to reduce ethnic violence; however, when it is interacted with market dominant minorities and democracy globalisation increases ethnic violence. Furthermore, Olzak (2011) finds that economic and social globalisation increases ethnic conflicts through increased ethnic heterogeneity that may be as a result of migration. On the other hand, Beck and Baum (2000) find little evidence that trade decreases conflict.

14 Of the reviewed literature, only a few examples use a similar globalisation index to that used by Dreher et al. (2008) as a determinant for conflict (Bezemer and Jong-A-Pin, 2013; Choi, 2010; Flaten and De Soysa, 2012; Olzak, 2011). The other studies use trade as a percentage of gross domestic product (GDP) as the preferred measure of globalisation (Barbieri and Reuveny, 2005; Beck and Baum, 2000; Hegre et al., 2003, 2010).

15 A main concern in Barbieri and Schneider (1999) is whether the varying measures of trade used by the various empirical studies is capturing the 'complex relationship of economic interdependence' considering the limitations in the trade variable. In our view, the trade variable captures only one facet of globalisation—economic openness—and as such does not give an accurate reflection of the historical shifts proposed by Pinker (2011). Economic openness mostly explains trade and financial globalisation through the flow of foreign direct investment and goods. It does not take into account migration, the transfer of skills and information through other channels such as the internet, television, telephones, radio and books, or the political influence of international organisations and embassies based within countries.

16 Other possible globalisation indices include the Kearney/Foreign Policy Globalisation Index (KFP), the $CSGR_2$ Globalisation Index, the Maastricht Globalisation Index (MGI), the New Globalisation Index (NGI) and the Globalisation Index (G-index). However, these indices do not have sufficient data for most sub-Saharan African countries and their time periods are limited (Samimi et al., 2011).

2. Empirical Analysis

2.1 Data

17 The dependent variable (*conflict*) is taken from the Major Episodes of Political Violence (MEPV) and Conflict Regions (Marshall, 2013). Major episodes of political violence involve at least 500 directly related deaths and reach a level of intensity in which the use of lethal violence by organised groups is systematic and sustained. The variable measures the total summed magnitudes or severity of all societal and interstate violence, which include international, civil, ethnic, communal, and genocidal violence and warfare. Magnitudes of a conflict are scaled from one to ten according to an assessment of the full impact of the violence on the society's normal networking and functioning, which are directly affected by the conflict. These effects include fatalities, casualties, resource depletion, destruction of infrastructure, and population displacements (Marshall, 2013).

18 Since the focus of this study is to identify the link between Pinker's (2011) historical shifts and conflict in sub-Saharan Africa, we convert the variable into a binary dependent. Years in which no conflict is recorded take on a 'zero'; a 'one' is taken if conflict is recorded in that year, irrespective of the magnitude or type of the conflict. We also separate the conflict variable into intrastate and interstate conflict dummies. Interstate conflict takes place between two or more countries. Intrastate conflict includes civil and ethnic wars that take place between the government of a country and internal opposition group(s) without intervention from other countries. These intrastate conflicts were common to the sub-Saharan region during the period under review, and include the DRC civil war, Rwandan genocide, Sierra Leone's resource conflict, and Zimbabwean ethnic violence.

19 The independent variables are based on Pinker's (2011) theory. The main explanatory variable is a measure of globalisation that we view as representing the historical shifts. The index (*globalisation*) is compiled by Dreher (2006) and updated by Dreher et al. (2008). It combines three key sub-indices of globalisation (social, economic and political) into a weighted index ranging from 0 (no globalisation) to 100 (highly globalised). The globalisation index captures the international flows of goods, capital, business people, technology, and information and the presence of international organisations. These different aspects in the index are closely related to the civilising process, pacification process, humanitarian and rights revolutions, and the extended periods of peace proposed by Pinker (2011).

20 The first sub-index is economic globalisation, which measures trade and financial openness through actual flows of goods, foreign direct investment, foreign portfolio investment, income payments to foreign nationals, and trade restrictions such as capital account restrictions, hidden import barriers and mean tariff rates. We view economic globalisation as representing the pacification and civilising processes. The ever-growing reliance on trade with other countries precipitated the transition from anarchy to state-run societies with increased urbanisation and industrialisation. The civilising process has also increased innovations in technology that have improved productivity, as well as introducing judicial institutions to protect the rights of the people. Economic globalisation thus promotes international cooperation and discourages countries from

engaging in conflict with their trading partners, as the opportunity costs of doing so are high.

21 The second sub-index is social globalisation, which measures personal contact and cultural proximity through tourism, the percentage of the foreign population in countries, telephone traffic, internet use, media use, trade in books, and the presence of multinational corporations. We view social globalisation as representing the humanitarian and rights revolutions. Pinker (2011) attributes the humanitarian revolution to the age of reason and enlightenment, when literacy spread from the elite to the masses. Social globalisation through migration and social media use has encouraged people to be more tolerant of each other's differences in terms of societies, ethnicities, religions, races and genders. Countries that also allow multinational firms are more integrated with global markets (Flaten and de Soysa, 2012) and therefore less likely to engage in conflict.

22 The third sub-index is political globalisation, which measures the number of embassies in the country, membership of international organisations, participation in United Nations (UN) Security Council missions and the number of international treaties. We view political globalisation as representing the extended periods of peace after World War II and the Cold War. Becoming members of international organisations encourages leaders to interact and come to common understandings; but more than that, the benefits obtained from being a member act as incentives to reduce conflict (Kant, 1983). For example, part of the mandates for blocs such as the Southern African Development Community (SADC) or the African Union (AU) include good governance, peace and security. As such, governments within the organisation are likely to intervene in member countries that engage in conflict (Seybolt, 2002). Moreover, Pinker (2011) states that the increasing presence of international organisations—such as peacekeeping forces, which mediate negotiations between aggrieved parties—acts as a deterrent to renewed skirmishes, which can escalate into conflict. In addition, analysis by Russett and Oneal (2001) finds that increased participation in international organisations reduces the likelihood of two countries within the same organisation engaging in conflict.

23 We include control variables that complement Pinker's (2011) theory and are commonly used in the conflict literature (Barbieri and Reuveny, 2005; Collier and Hoeffler, 1998; Montalvo and Reynal-Querol, 2005). These include income per capita, democracy, education, resource rents, population and bordering neighbours. The control variables also help to minimise omitted variable bias.

24 Income per capita at constant prices (*gdpcap*) is taken from the World Development Indicators (WDIs) and measures the real gross domestic product. We expect that increases in income will reduce the grievances that make conflict more likely, such as poverty and inequality. Collier and Hoeffler (2002) and Fearon and Laitin (2003) they find that low incomes per capita facilitate easy recruitment for rebel groups as income opportunities are worse in the formal labour market. Furthermore, Pinker (2011) shows evidence that wars take place mainly in developing countries found in central and East Africa, south-west Asia and the Middle East, which supports the conclusion drawn by Collier and Hoeffler (2002) that Africa's poor economic performance can be attributed to the rising trend of conflict in the region during the 1980s and 1990s.

25 *Education* measures the duration spent in secondary education and is obtained from the WDIs. This variable has contrasting results across the literature. While Krueger and Maleckova (2003) find no correlation suggesting that increased education decreases

conflict, Collier and Hoeffler (2004) report that the number of males enrolled in secondary education has a negative effect on conflict. Education equips people with skills that they can use in employment, rather than 'brigandage and warlording', and keeps young boys off the streets and out of militia (Pinker, 2011). Moreover, Reynal-Querol (2002) finds that the level of education is a significant determinant in reducing conflict, especially when not used in conjunction with income per capita. These contrasting results make it difficult to infer a priori expectations, but we expect a negative relationship between education and the magnitude of conflict.

26 *Democracy* is obtained from the Polity IV Project (Marshall et al., 2013). It measures the checks and balances on the executive or the extent of institutionalised constraints on the decision-making powers of chief executives, whether individuals or collectives. A seven-category scale is used: one (unlimited authority of the decision-making body) to seven (executive parity, i.e. the accountability groups have effective control over the executive). The variable is normalised between zero and one.

27 Democratic countries can be more responsive to people's demands and avoid rebellions or democracy can create the opportunity for people to collude and organise. According to Pinker (2011), democratic countries tend to avoid disputes that hinder their trade relations and welfare gains. This is confirmed by Collier and Hoeffler (2004), who find a significant negative democracy–conflict relationship, while evidence from Reynal-Querol (2005) shows that democracies, along with political systems that are more inclusive, are less prone to civil war. Others, however, find no significant effect on conflict (Barbieri and Reuveny, 2005; Elbadawi and Sambanis, 2002; Fearon and Laitin, 2003; Miguel et al., 2004), whereas Olzak (2011) reports that democracy actually raises the severity levels of ethnic conflict. Although several studies find that democracy does not reduce the number of civil conflicts, it does seem to reduce their severity (Gleditsch, 2008; Lacina, 2006). We expect increased democracy to be associated with lower magnitudes of conflict.

28 Given the abundance of resources in sub-Saharan Africa, we also include total natural resource rents (*resource rents*) measured as a percentage of GDP from the WDIs. Resource rents increase conflict through rentier effects that accrue to elite groups and raise the incentive to stay in power (Fearon and Laitin, 2003; Pinker, 2011). These rents also fund rebel groups for those authoritarian incumbents who want to intimidate civilians (Barbieri and Reuveny, 2005; Collier and Hoeffler, 2004). The resource curse appears prevalent in developing economies with weak governments (Sachs and Warner, 2001; Ross, 2003). Given the history of Africa's institutions, we expect a positive resource rents–conflict relationship.

29 We include the number of bordering countries engaged in conflict (*border*) as an additional control. The variable is obtained from the Major Episodes of Political Violence and Conflict Regions (Marshall, 2013). We expect a positive relationship between the number of bordering countries involved in conflict and the magnitude of conflict in the region. According to Michalopoulos and Papaioannou (2016), conflict is more likely in countries containing ethnic groups split by artificial colonial borders because i) these split groups can be used by governments to destabilise neighbouring countries (for example, the DRC left Burundi rebels to operate within its borders to disrupt Congolese rebels that controlled part of the DRC and Burundi border (Seybolt, 2002)), and ii) split ethnic groups that often face discrimination from the national government can engage in conflict with support from their co-ethnics across the border. For example, Rwandan Hutu farmers displaced by the Burundi government joined rebel groups opposing the

Burundi government (Seybolt, 2002). Cross-country evidence from Bosker and de Ree (2014) also shows that the likelihood of conflict increases when there is an ethnic war in neighbouring countries. Furthermore, Gleditsch (2007) finds that the presence of trans-boundary ethnic groups increases conflict risk.

30 Given the high population rates in sub-Saharan African countries, we also control for this in our analysis. The variable (*population*) is taken from the WDIs and measures the level of population in millions. Governments may find large populations relatively difficult to sustain, which can increase the risk of conflict (Barbieri and Reuveny, 2005; Fearon and Laitin, 2003). Large populations are also likely to increase the pressure on scarce resources such as water, land or minerals, which can lead to conflict (Gleditsch, 1998). However, Tir and Diehl (1998) find results contrary to the population pressure hypothesis. They find that while countries with low levels of technology are more prone to population pressures and conflict than are advanced countries, they do not necessarily engage in conflict as a means of obtaining more resources for their growing population. Evidence from the same authors also indicates that advanced technology might lessen the harmful effects of high population growth.

2.2 Descriptive Statistics

31 Table 1 offers a brief overview of the data. The descriptive statistics indicate the heterogeneity that is present between the countries.

Table 1: Descriptive statistics

Variables	Obs.	Mean	Std. Dev.	Min	Max
Conflict	1,947	0.82	1.78	0	10
Globalisation	1,896	33.83	10.26	10.56	69.37
Social.glob	1,940	22.29	9.78	5.24	64.49
Political.glob	1,940	44.57	18.35	3.73	90.94
Economic.glob	1,711	38.46	15.08	7.76	87.22
Democracy	1,948	3.11	1.95	1	7
Education	1,980	6.26	0.77	4	8
Resource	1,810	12.51	14.88	0	100.37
Gdpcap	1,832	253354.10	622609	245.21	8157548
Border	1,902	1.05	1.194	0	7
Population	2,024	1.20e+07	1.92e+07	159667	1.74+08

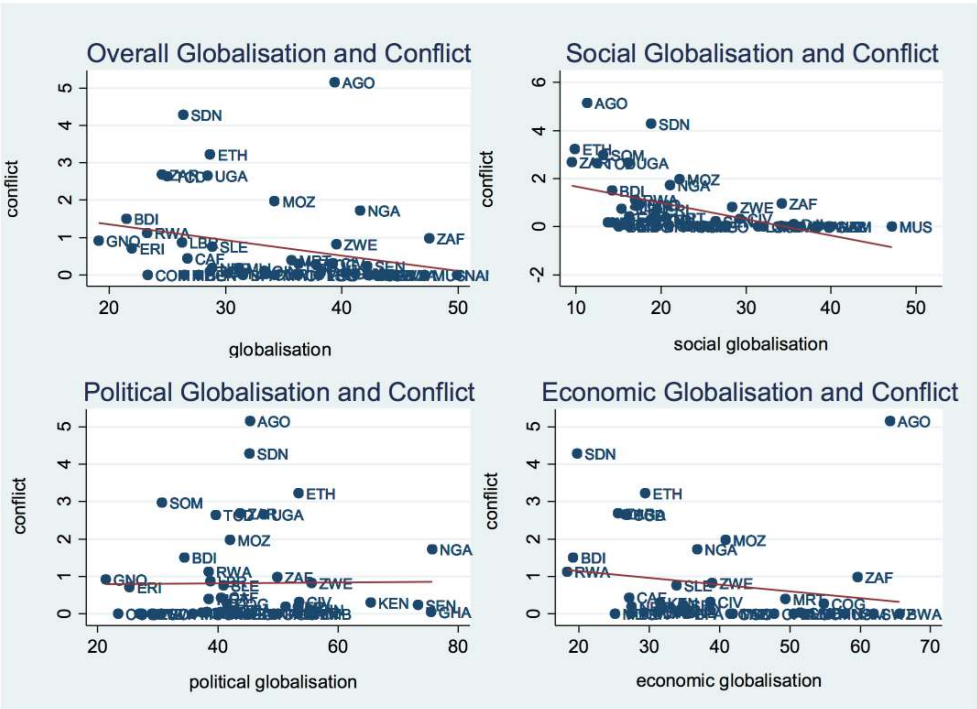
Source: Dreher et al. (2008); Major Episodes of Political Violence (Marshall, 2013); Polity IV Project (Marshall et al., 2013); WDIs.

32 Interestingly, the countries that are more globalised, with higher incomes per capita, stronger constraints on the executive and lower resource rents also exhibit lower magnitudes of conflict (e.g. Botswana, Cape Verde, Mauritius and South Africa). These countries are also not surrounded by warring neighbours. Those countries with low levels of globalisation, lower incomes per capita and weak executive constraints exhibit higher magnitudes of conflict (e.g. Chad, Eritrea, Ethiopia and Sudan).

33 The correlation matrix in Table 2 highlights the linearity between the explanatory variables. The linearity between overall globalisation and its sub-indices is high as the overall globalisation index is made up of the economic, social and political sub-indices. The linearity between the sub-indices is, however, relatively lower as they each contain different information. The rest of the control variables also indicate low linearity, which should minimise the presence of multicollinearity in a multiple regression model.

34 Figure 2 shows a negative linear relationship between mean overall globalisation and mean magnitude of conflict. A significant downward trend is also shown between social globalisation and conflict compared with economic and political globalisation and conflict, which remain relatively flat. The statistical evidence suggests that social globalisation may be a driving force for explaining the decrease in conflict. The graph also shows that the countries with higher severity of conflict are those that have had longer durations of conflict, such as Angola, Ethiopia and Sudan. The remaining countries range between zero and two for levels of severity during conflict times. The overall statistical analysis favours our hypothesis that globalisation reduces conflict.

Figure 2: Globalisation indices and conflict



Note: we use the mean magnitude of conflict for the correlation graphs.

Source: KOF Index of Globalisation (Dreher et al., 2008); Major Episodes of Political Violence (Marshall, 2013).

Table 2: Correlation matrix

Variables	Globalisation	Social.glob	Political.glob	Economic.glob	Democracy	Education	Resource	Gdpcap	Border	Population
Globalisation	1.000									
Social.glob	0.738	1.000								
Political.glob	0.632	0.149	1.000							
Economic.glob	0.807	0.625	0.095	1.000						
Democracy	0.478	0.421	0.235	0.430	1.000					
Education	-0.281	-0.186	0.060	-0.454	-0.205	1.000				
Resource	0.037	-0.152	0.094	0.189	-0.198	0.058	1.000			
Gdpcap	-0.071	0.015	-0.027	-0.117	-0.123	0.184	0.4422	1.000		
Border	-0.167	-0.305	0.094	-0.264	-0.154	-0.077	0.004	-0.105	1.000	
Population	0.178	-0.148	0.477	-0.048	0.085	-0.089	0.173	-0.081	0.177	1.000

Source: Dreher et al. (2008); Polity IV Project (Marshall et al., 2013); WDIs.

3. Regression Analysis

35 We use a logit regression to predict the risk that a conflict occurs during a given year. This type of estimation is commonly used to determine the effects of explanatory variables on dichotomous or binary outcome variables. We include country fixed effects that control for the average differences across countries in any observable or unobservable predictors; for example, differences in the quality of education or the political system of a particular country could have some effect on conflict outcomes. Given that Pinker (2011) discusses the effects of the historical shifts as being gradual processes in reducing violence, we lag the globalisation index to account for this delay and to account for any time-varying unobserved heterogeneity. By lagging globalisation, we also minimise the issue of reverse causality, which may be present in the specification.

36 Despite the time period 1970 to 2013 only covering a little over four decades as compared to Pinker's (2011) analysis, the period is sufficient for this research as it covers most episodes of conflict that occurred in the region. Including, for example, the civil wars in Angola, the DRC and Mozambique; the Eritrea–Ethiopia war; the Rwandan genocide; the Nigeria and Sierra Leone resource conflicts; South African apartheid violence; and the Zimbabwean war of independence. According to Miguel et al. (2004), 23 out of 49 countries experienced conflict during the 1980s and 1990s in Africa and these periods are covered by the data set.

37 Table 3 reports the results for globalisation and its sub-indices. The results indicate that, overall, globalisation is significant in reducing the likelihood of conflict within the region. The odds (likelihood) of any type of conflict in a given year are 10 per cent less likely as the level of globalisation increases. This result is in line with our hypothesis, which is associated with Pinker's (2011) theory. The historical shifts encompassed in the rise of globalisation have developed a pacifying effect on conflict over time. Social globalisation reduces the odds of intrastate conflict by just under 20 per cent. Our results are contrary to Olzak (2011), who finds that social globalisation increases ethnic armed conflicts. We argue that social globalisation has contributed to lowering levels of intrastate conflict through increased interactions with migrants, increased access to information through social media, and tolerance of heterogeneous societies. For example, campaigns against war may not have begun were it not for the violent images that were shown in newspapers and on television, or for radio reports.

Table 3: Logistic regressions with fixed effects

	(1)	(2)	(3)	(4)	(5)	(6)
	All conflict	All conflict	Intrastate conflict	Intrastate conflict	Interstate conflict	Interstate conflict
Globalisation	0.954***		0.960***		0.945*	
	(0.010)		(0.010)		(0.027)	
Social.glob		0.839***		0.828***		1.094
		(0.023)		(0.023)		(0.095)
Political.glob		1.019**		1.025***		0.941**
		(0.009)		(0.010)		(0.025)
Economic.glob		1.002		1.004		1.001
		(0.013)		(0.013)		(0.036)
Observations	1,279	1,137	1,216	1,094	397	377
Number of i	31	27	29	26	10	9
Country FE	Yes	Yes	Yes	Yes	Yes	Yes
Log Likelihood	-527.1	-447.4	-510.0	-433.2	-90.60	-82.08
Pseudo R-sq	0.0184	0.0572	0.0138	0.0616	0.0237	0.0429

Notes: Odds ratios reported. Standard errors in parentheses.
*** p<0.01, ** p<0.05, * p<0.1.
Source: Dreher et al. (2008); Major Episodes of Political Violence (Marshall, 2013).

38 Political globalisation, meanwhile, increases intrastate conflict but reduces the odds of interstate conflict. Most countries today are part of regional blocs (for example the Southern African Development Community or the African Union) and as such they are less likely to engage in interstate disputes that can compromise their international relations. Economic globalisation does not have any significant effect on conflict. The globalisation results appear to be driven by the effects of globalisation on intrastate conflict. We expect this given that sub-Saharan Africa has recorded more episodes of conflicts within states than between states during the period under review.

39 Table 4 reports the results with our control variables included in the regressions. The mitigating effects on conflict from the globalisation indices are relatively robust, with the size of the estimates for the globalisation indices remaining largely unaffected by the inclusion of the control variables. Social globalisation continues to emerge as the driving force behind the globalisation results. The odds of conflict, more so intrastate conflict,

are 10 to 20 per cent less likely with increases in the levels of overall globalisation and social globalisation.

Table 4: Logistic regressions with control variables

	(1)	(2)	(3)	(4)	(5)	(6)
	All conflict	All conflict	Intrastate conflict	Intrastate conflict	Interstate conflict	Interstate conflict
Globalisation	0.915***		0.915***		0.794*	
	(0.025)		(0.025)		(0.101)	
Social.glob		0.861***		0.855***		0.829
		(0.029)		(0.029)		(0.153)
Political.glob		0.985		0.988		0.872**
		(0.013)		(0.013)		(0.050)
Economic.glob		0.999		0.996		0.925
		(0.018)		(0.018)		(0.072)
Democracy	2.044	4.090***	1.930	4.209***	53.804	79.046
	(0.992)	(2.180)	(0.943)	(2.244)	(141.811)	(252.099)
Education	0.886	1.196	1.021	1.310	0.000	0.000
	(0.198)	(0.277)	(0.237)	(0.309)	(0.000)	(0.000)
Resource	1.016	0.983	1.016	0.985	0.887*	0.901
	(0.012)	(0.014)	(0.012)	(0.014)	(0.062)	(0.065)
Gdpcap	1.000***	1.000***	1.000***	1.000***	1.000	1.000*
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Border	1.578***	1.380***	1.476***	1.305**	2.164**	1.632
	(0.178)	(0.166)	(0.166)	(0.157)	(0.724)	(0.585)
Population	3.112**	6.154***	3.347**	5.910***	21.714	437.775**
	(1.756)	(3.930)	(1.900)	(3.804)	(57.468)	(1,345.062)
Observations	1,059	975	1,040	975	250	231
Number of i	28	25	27	25	7	6

Country FE	Yes	Yes	Yes	Yes	Yes	Yes
Log likelihood	-391.9	-346.0	-383.7	-342.9	-47.44	-41.72
Pseudo R-sq	0.151	0.180	0.146	0.176	0.229	0.236

Notes: Odds ratios reported. Standard errors in parentheses.
*** p<0.01, ** p<0.05, * p<0.1.
Source: Dreher et al. (2008); Major Episodes of Political Violence (Marshall, 2013); Polity IV Project (Marshall et al., 2013); WDIs.

40 Democracy increases the likelihood of overall conflict incidences, with the results being driven by the positive and significant effect of democracy on intrastate conflict. Even though Pinker (2011) attributes longer periods of democracy to less conflict, he highlights that democracy is delayed in countries that are anocracies (semi-democracies), where weak governments do not encourage the establishment of better institutions but instead prefer to protect their positions of power. This conclusion can be drawn for sub-Saharan Africa. Given the region's relatively low average for executive constraints—coupled with the fact that some of the countries only achieved democracies within the last half decade—the effects of democracy may not yet have spread across the region. The region may also simply be in a state formation process, where conflict acts as a catalyst for change that will determine future state governing structures (Blattman and Miguel, 2010).

41 An increase in the number of bordering countries engaged in conflict increases the odds of both intrastate and interstate conflicts involving affected countries in the region. This result indicates some spillover effects from sharing borders with unstable countries. These effects can occur either in the form of militarised interventions by neighbouring countries, such as the case of Angola, Namibia and Zimbabwe contributing troops to the DRC government during the DRC's civil war, or of displaced populations who offer support to rebel groups in opposition to the national government. Other examples include the civil war in the DRC in 1998, which spilled over the border into Burundi following the Rwandan genocide; the civil war in Liberia, which moved to Sierra Leone; and the Côte d'Ivoire crisis in 2010, which saw many Côte d'Ivoire citizens cross over into Liberia for safety.

42 Population also has a significantly positive relationship with conflict, irrespective of conflict type. Larger populations are difficult to sustain, which increases the risk of conflict.

43 Effects from education and resource rents are insignificant regarding conflict in the region. Neither does income per capita appear to affect the odds of conflict.[2]

4. Additional Analysis

44 As a robustness check, we use the commonly preferred measure for globalisation in the literature, trade as a percentage of GDP (Barbieri and Reuveny, 2005; Beck and Baum, 2000; Hegre et al., 2003, 2010). The variable is obtained from the WDIs. The results in Table 5 indicate similar conclusions to our previous results, with openness contributing to reduced magnitudes of conflict, particularly intrastate conflict. The conclusions drawn from the control variables remain relatively in line with the previous results.

Table 5: Logit regressions with different globalisation variable

	(1)	(2)	(3)
	All conflict	Intrastate conflict	Interstate conflict
Trade	0.978***	0.972***	1.010
	(0.006)	(0.006)	(0.022)
Democracy	2.887**	2.724**	467.372***
	(1.366)	(1.297)	(867.730)
Education	1.002	1.192	0.000
	(0.214)	(0.265)	(0.001)
Resource	1.011	1.015	0.871*
	(0.014)	(0.015)	(0.069)
Gdpcap	1.000***	1.000***	1.000
	(0.000)	(0.000)	(0.000)
Border	1.734***	1.613***	2.999***
	(0.189)	(0.176)	(0.953)
Population	0.981	1.169	0.088**
	(0.355)	(0.438)	(0.098)
Observations	1,064	1,044	285
Number of i	29	28	8
Country FE	Yes	Yes	Yes
Log Likelihood	-389.2	-377.6	-52.67
Pseudo R-sq	0.156	0.158	0.274

Notes: Odds ratios reported. Standard errors in parentheses.

*** p<0.01, ** p<0.05, * p<0.1.

Source: Major Episodes of Political Violence (Marshall, 2013); Polity IV Project (Marshall et al., 2013); WDIs.

45 We also use different dependent variables for conflict.[3] The first variable is taken from the UCDP Battle-Related Deaths data set version 5.0-2015 (Pettersson, 2015) and takes on the value of one when there are at least 25 battle-related deaths in a given country and

year. The second conflict variable is the measure of the magnitudes of conflict from the Major Episodes of Violence data set (Marshall, 2013). The variable is normalised between zero and one. We use ordinary least squares with fixed effects for the second dependent as it is continuous.

46 The results reported in Table 6 are similar to previously reported results, with social globalisation remaining consistent in reducing conflict in the region.

Table 6: Regressions with different conflict variables

	(1)	(2)	(3)	(4)
	UCDP - Logit	UCDP - Logit	MEPV - FE	MEPV - FE
Globalisation	0.851***		-0.138*	
	(0.049)		(0.075)	
Social.glob		0.751***		-0.168*
		(0.066)		(0.087)
Political.glob		0.992		-0.037
		(0.026)		(0.051)
Economic.glob		0.936*		0.041
		(0.035)		(0.043)
Democracy	0.025***	0.016***	0.043	0.051
	(0.029)	(0.025)	(0.035)	(0.036)
Education	1.252	1.462	-0.012	0.015
	(0.549)	(0.623)	(0.036)	(0.036)
Resource	0.981	0.969	0.001	-0.001
	(0.020)	(0.022)	(0.001)	(0.001)
Gdpcap	1.000	1.000	-0.000	-0.000
	(0.000)	(0.000)	(0.000)	(0.000)
Border	1.455**	1.214	0.018*	0.008
	(0.263)	(0.241)	(0.010)	(0.010)
Population	0.068***	0.076***	0.042	0.057
	(0.057)	(0.072)	(0.060)	(0.070)

Observations	848	717	1,662	1,512
Number of i	22	18	44	39
Country FE	Yes	Yes	Yes	Yes
Log Likelihood / F-test	-196.0	-172.5	3.539	2.661
R-squared	0.382	0.395	0.036	0.108

Notes: Odds ratios reported for the logit regressions. Coefficients reported for the OLS with fixed effects. Standard errors in parentheses; robust for OLS-FE.

*** p<0.01, ** p<0.05, * p<0.1.

Source: Dreher et al. (2008); Major Episodes of Political Violence (Marshall, 2013); Polity IV Project (Marshall et al., 2013); WDIs; UCDP (Pettersson, 2015).

47 A final check is to run the regressions at five-year intervals in case the results are picking up interpolation trends from the globalisation data. Overall, the inferences from globalisation and its sub-indices remains the same as for previous findings, with social globalisation maintaining its significance in reducing the odds of conflict. We, however, lose statistical significance on most variables due to the loss of observations, particularly with the interstate conflict variable, which already had limited data points to begin with.

Table 7: Regressions at five-year intervals

	(1)	(2)	(3)	(4)	(5)	(6)
	All conflict	All conflict	Intrastate conflict	Intrastate conflict	Interstate conflict	Interstate conflict
Globalisation	0.976		0.984		0.771	
	(0.027)		(0.028)		(0.142)	
Social.glob		0.846**		0.847**		0.617
		(0.057)		(0.058)		(0.243)
Political.glob		1.027		1.029		1.033
		(0.023)		(0.024)		(0.097)
Economic.glob		1.011		1.007		0.898
		(0.037)		(0.038)		(0.117)
Democracy	4.309	7.093	3.720	7.742	18.507	232.866
	(4.912)	(9.046)	(4.342)	(10.075)	(97.936)	(1,228.404)
Education	0.912	1.408	1.241	1.510	0.000	0.000

	(0.474)	(0.787)	(0.684)	(0.853)	(0.000)	(0.000)
Resource	1.027	1.020	1.027	1.027	0.998	0.993
	(0.031)	(0.037)	(0.033)	(0.039)	(0.104)	(0.114)
Gdpcap	1.000**	1.000*	1.000**	1.000*	1.000	1.000
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Border	2.259***	2.017**	2.404***	2.084**	1.185	1.426
	(0.696)	(0.667)	(0.759)	(0.706)	(0.759)	(1.083)
Population	0.342	0.427	0.414	0.407	6.076	1.269
	(0.254)	(0.372)	(0.317)	(0.363)	(18.689)	(4.410)
Observations	212	193	208	193	54	49
Number of i	26	23	25	23	7	6
Country FE	Yes	Yes	Yes	Yes	Yes	Yes
Log likelihood	-68.72	-57.19	-64.84	-54.91	-12.68	-11.56
Pseudo R-sq	0.198	0.247	0.206	0.255	0.298	0.284

Notes: Odds ratios reported for the logit regressions. Standard errors in parentheses.
*** p<0.01, ** p<0.05, * p<0.1.
Source: Dreher et al. (2008); Major Episodes of Political Violence (Marshall, 2013); Polity IV Project (Marshall et al., 2013); WDIs.

5. Conclusion

48 Pinker's (2011) book is dedicated to explaining the decline in violence witnessed over history. He attributes this declining trend to several historical shifts that have enhanced the influence of more passive human traits and made people less prone to conflict. We view these shifts as being encompassed in globalisation and study the effects of globalisation on violence in sub-Saharan Africa, focusing solely on conflict.

49 Overall, the results support Pinker's (2011) theory that opening up borders and increasing global trade has increased the opportunity costs of conflict. We find that globalisation, particularly social globalisation, plays a significant role in reducing conflict. Even when we include conflict-related control variables and use a different conflict dependent and different globalisation variable, globalisation emerges as the most robust predictor for pacifying conflict.

50 Although policy inferences based on these results may be premature, the study does suggest that creating incentives that put a greater value on fostering mutual prosperity within states can contribute to lower conflict levels in the region. Although we realise

that global processes are volatile and that the trend of conflict can shift at any time, we contend that today's peace-promoting global forces (such as good governance, intensified international relations, and economic development) are dominant enough to offset the negative effects of globalisation.

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NOTES

1. Sample of countries: Angola, Benin, Botswana, Burkina Faso, Burundi, Cameron, Cape Verde, Central African Republic, Chad, Comoros, Congo (Democratic Republic of), Congo (Republic of), Côte d'Ivoire, Djibouti, Equatorial Guinea, Eritrea, Ethiopia, Gabon, Gambia, Ghana, Guinea, Guinea Bissau, Kenya, Liberia, Lesotho, Madagascar, Malawi, Mali, Mauritania, Mauritius, Mozambique, Namibia, Niger, Nigeria, Rwanda, Senegal, Sierra Leone, Somalia, South Africa, Sudan, Swaziland, Tanzania, Togo, Uganda, Zambia and Zimbabwe.

2. Results and conclusions drawn remain robust when we account for persistence in the conflict variable in dynamic specifications. Results are available on request.
3. The Small Arms Survey's data on homicides (United Nations Office on Drugs and Crime) would have been a beneficial addition to the analysis. Unfortunately, the data covers less than half the African countries under review from the year 2000 to 2012. The missing observations are too significant to be able to use this variable.

ABSTRACTS

Stephen Pinker (2011) advances that various forms of violence, such as homicide, rape, torture and conflict, have decreased over time because of the following historical shifts in society: the pacification process, civilising process, humanitarian and rights revolutions and extended periods of peace. We regard these shifts as processes encompassed in globalisation and investigate the effects of globalisation on conflict, one of the forms of violence Pinker (2011) discusses. We use panel data from 46 sub-Saharan African countries dated 1970 to 2013 and find that increased globalisation significantly reduces conflict. The results suggest that the historical shifts removed boundaries between territories and created incentives that discouraged hostility. Furthermore, we find that social globalisation, which is associated with the historical shifts, drives the results. The influence of social interactions through increased migration, commerce and access to information encourages tolerance and raises the opportunity cost of conflict. We also disaggregate conflict into intrastate and interstate and find that the intrastate conflict is significantly reduced by globalisation processes as compared to interstate conflict.

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