

# Globalisation and Conflict: Evidence from sub-Saharan Africa\*

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## Abstract

Stephen Pinker (2011) advances that conflict has decreased over time because of processes that entail economic, social and political openness. We study the effects of globalisation on conflict in 46 sub-Saharan African countries using panel data from 1970 to 2010. We find that overall globalisation significantly reduces episodes of conflict in the sample. Furthermore, we decompose globalisation into its three key elements (social, political and economic openness) and find that social globalisation to an extent drives the results.

Keywords: conflict, globalisation, sub-Saharan Africa

JEL Classification: O10, O55, H56, F69

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# 1 Introduction

Over the last half century, sub-Saharan African countries have experienced transitions towards more open and inclusive economies, as well as improved democratic institutions. Stephen Pinker (2011) advances that the number of people being killed due to various forms of violence ranging from homicide to conflict has decreased over time because of certain processes that encompass economic, social and political openness. These processes have encouraged non-violent forms of interactions among people and nations.

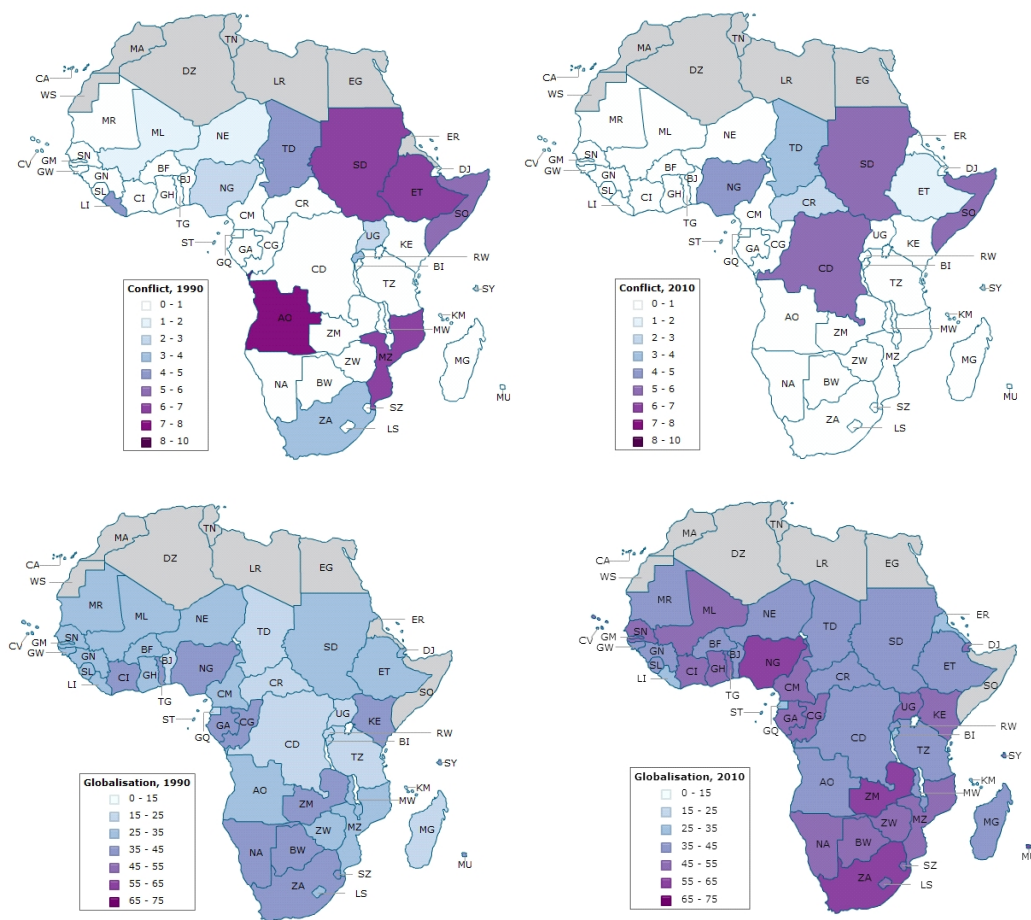
He proposes that the following shifts have been significant determinants in reducing violence. Firstly, the pacification process which has seen less tribal feudalism as societies transition from hunter-gatherer to state-run societies based on agriculture. Secondly, the civilising process which has seen the rise of cities and global commerce. With civilisation came international trade which created opportunities for labour markets and the need for education, innovations in technology which improved productivity and encouraged further commerce, as well as judicial institutions to protect the rights of people. Thirdly, the humanitarian and rights revolutions which have seen violent practices abolished such as slavery and torture, decrease in violence against ethnic minorities, religion, race, women, children and same sex relationships. Lastly, the extended periods of peace after the World War 2 and the Cold War have seen decreases in wars fought by the world's major powers and drops in interstate wars, civil wars, genocide and terrorism. These global shifts have encouraged interactions between societies which has necessitated a move away from violence.

Making use of Pinker's (2011) hypothesis, we investigate if these processes which encompass globalisation have reduced episodes of conflict within 46 sub-Saharan African countries between 1970 and 2010. We focus our research on conflict because it is one of the forms of violence common to sub-Saharan Africa given the region's history with decolonisation, independence struggles and internal conflicts. Furthermore, comprehensive conflict datasets are readily available for Africa that span a longer period than deaths that occur due to homicide rates, rape cases or hate crimes. However this offers opportunities for further research into the impact of globalisation on other forms of violence.

The time series is determined by the globalisation index we use which is recorded from 1970 to 2010. Despite the shortened annual period as compared to Pinker (2011), we are confident that the period is sufficient for the analysis as firstly it covers most conflict that occurred in the region such as the independence, civil and ethnic wars in Angola, Democratic Republic of Congo (DRC), Ethiopia-Eritrea, Mozambique, Rwandan genocide, Nigeria and Sierra Leone resource conflicts, South Africa apartheid violence, Zimbabwe *etc.* According to Miguel, Satyanath & Sergenti (2004), 23 out of 49 countries experienced conflict during the 1980s and 1990s in Africa. Secondly, during this same period the countries were also gradually shifting to more open economies with increased regional and international trade, as well as becoming more inclusive of social and political differences within and across borders.

Figure 1 illustrates this possible trend emerging between globalisation and conflict in sub-Saharan Africa. There are fewer conflict zones in 2010 than in 1990, whereas globalisation has improved significantly from 1990. It is interesting to note that countries that are surrounded by open and politically

stable economies globalised faster than those surrounded by relatively closed and unstable economies (e.g. Namibia, Zimbabwe and the western countries bordering Nigeria and Ghana indicate more globalised economies than Angola, DRC, Sudan and Ethiopia). This evidence may suggest a possible spill-over effect which deters countries from engaging in conflict for fear of losing the welfare gains associated with the trading relationship (Barbieri & Schneider 1999). Based on this evidence we propose that as the region has become more globalised, conflict has reduced. Countries have found it more beneficial to form economic ties with each other in order to advance economic development (Choi 2010).



**Figure 1:** Globalisation and Conflict (Source: Dreher et al. 2008; Center for Systemic Peace)

This research contributes to a growing debate on the effects of openness on conflict. Two contrasting views dominate this debate. The one view proposes that globalisation has a pacifying effect on conflict as it promotes economic growth and social progress through trade, migration and transfer of ideas, information and technology. These factors encourage peaceful relationships between countries. A study by Choi (2010) finds that globalisation generates a negative effect on interstate disputes, while Barbieri & Reuveny (2005) and Flaten & De Soysa (2012) show that globalisation predicts a lower risk of civil war and political repression. Moreover, Hegre *et al.* (2003) and Hegre *et al.* (2010) find that economic openness reduces internal conflict through its beneficial effects on growth and political stability.

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 resistance from those who become oppressed. Research undertaken by Bezemer & Jong-A-Pin (2013) shows globalisation on its own works to reduce ethnic violence, however when they interact it with market dominant minorities and democracy, they find that it increases ethnic violence. Furthermore, Olzak (2011) and Hwang (2012) report positive effects of globalisation on internal social conflict, whereas Beck & Baum find little evidence that trade decreases conflict. A summary of previous studies with mixed results on the trade-conflict relationship is reported in Barbieri & Schneider (1999). These inconsistent findings also motivate this study.

We contribute to the empirical literature by using a globalisation index which represents more than just economic openness, but social and political openness as well. Of the reviewed literature only a few use a similar globalisation index as a determinant for conflict (Bezemer & Jong-A-Pin 2013; Choi 2010; Flaten & De Soysa 2012; Olzak 2011; Hwang 2012). The other studies use trade as a percentage of Gdp as the preferred measure of globalisation. In our view this measure captures only one facet of globalisation which is economic openness through trade and foreign direct investment (Beck & Baum 2000, Hegre & Gleditsch 2003, Hegre *et al.* 2010), and therefore does not give an accurate reflection of the global processes proposed by Pinker (2011).

We carry out an empirical analysis of the theory using panel data techniques, namely pooled OLS, fixed effects and fixed effects with instrumental variables to control for heterogeneity and reverse causality. The results indicate a negative relationship between globalisation and conflict, suggesting that more open economies are likely to have less conflict. We further contribute to existing literature by disaggregating the globalisation variable into economic, social and political globalisation. We find that social globalisation is a stronger predictor for decreasing conflict than the other two sub-indices, suggesting that social ties are more beneficial as a pacifying agent than economic or political affiliations.

## 2 Empirical Analysis

### 2.1 Data

The dependent variable (*conflict*) is taken from the Major Episodes of Political Violence (MEPV) and Conflict Regions (Marshall 2013). Major episodes of political violence are defined by the systematic and sustained use of lethal violence by organised groups that result in at least 500 directly-related deaths over the course of the episode. The variable measures the total summed magnitudes of all societal and interstate violence which include international, civil, ethnic, communal, and genocidal violence and warfare. Episodes are scaled from 1 to 10 according to an assessment of the full impact of the violence on the society's functioning which is directly affected by the conflict. These effects include fatalities, casualties, resource depletion, destruction of infrastructure and population dislocations (Marshall 2013) The variable

is normalised so that values are between 0 and 1.

We choose this variable because not only does it capture the social and economic disruptions caused by episodes of conflict under one index, but we can also separate the variable into interstate and intrastate conflict which makes further analysis possible. The variable is also relevant to the research as it measures the severity of conflict rather than the number of conflict which is more in line with Pinker (2011) who states that openness to the global economy "appears to drive down both the likelihood and the severity of civil conflict". To the best of our knowledge none of the literature reviewed uses this recent conflict variable.

The variables of choice are based on Pinker's (2011) theory, specifically globalisation which we believe represents a significant part of it. The main explanatory variable (*globalisation*) is taken from a dataset compiled by Dreher (2006) and updated by Dreher *et al.* (2008). It is made up of economic, social and political globalisation which capture the international flows of goods, capital, people, information and ideas. Several empirical papers study the impact of economic openness on various forms of conflict using trade as a percentage of Gdp (Hegre *et al.* 2003, 2010; Beck & Baum 2000; Barbieri & Reuveny 2005). A main concern in Barbieri & Schneider (1999) was if the varying measures of trade used by the various empirical studies were capturing the "complex relationship of economic interdependence" considering the limitations in the trade variable. Economic openness mostly explains the flow of foreign direct investment, international capital and goods markets, but fails to take into account the movement of people across borders, the exchange of ideas and spread of information through internet, television, telephones, as well as the political influence of international organisations based within countries.

The globalisation index we use captures all these aspects of openness, and in our view is applicable to the analysis because it encompasses the periods of civilisation, pacification, humanitarian and rights revolutions and the extended periods of peace which Pinker (2011) proposes are significant global processes in the decline of conflict. In compiling the index, Dreher *et al.* (2008) combine three key components of globalisation into a weighted index ranging from 0 (no globalisation) to 100 (highly globalised).

The first component incorporates economic globalisation which accounts for actual flows of trade, foreign direct investment, foreign portfolio investment and trade restrictions. This part covers the pacification and civilisation processes which came with increased trade, commerce and technology. (Pinker 2011).

The second component is social globalisation which accounts for personal contact through international tourism, the percentage of foreign population in countries and telephone traffic, information flows through the use of the internet, televisions and newspapers, and cultural proximity through trade in books and presence of multinational corporations. Some may argue that their cultural proximity measure is too narrow, considering that in regions such as Africa, there are no IKEA stores and only a few McDonald's restaurants regionally, mostly in South Africa. However few can contest that countries that accept foreign businesses are in fact more integrated with global markets (Flaten & De Soysa 2012). In our view, social globalisation represents the increase in humanitarianism and rights revolutions when people became more

educated and open to different societies, ethnicities, religions, race and gender (Pinker 2011).

The third component measures political globalisation through the number of embassies in the country, membership in international organisations, participation in United Nations (UN) security council missions and number of international treaties. This political openness captures the extended period of peace after World War 2 and the Cold War which Pinker (2011) highlights as a determinant for decreasing conflict. He states that the increasing presence of international peacekeeping forces was significant in reducing conflict. We expect an increase in overall globalisation to reduce magnitudes of conflict within the region.

We include controls to avoid omitted variable bias. The controls are in line with Pinker (2011) as complementing his hypothesis, and are also commonly used in conflict literature (Barbieri & Reuveny 2005; Besley & Persson 2008; Collier & Hoeffler 1998, 2002, 2004; Elbadawi & Sambanis 2002; Fearon & Laitin 2003; Hegre *et al.* 2003, 2010; Miguel *et al.* 2004; Reynal-Querol 2002; Montalvo & Reynal-Querol 2005). These include income per capita, democracy, education, and resource rents. According to Pinker (2011) not only are democracies free of oppression, but they are richer, better educated, and more open to international trade.

Income per capita (*gdpcap*) is taken from the Penn World Tables 7.1 and measures the real gross domestic product (GDP). We expect that increases in this determinant will reduce the grievances that make conflict more likely such as poverty (Collier & Hoeffler 1998; Fearon & Laitin 2003; Miguel *et al.* 2004). In Collier & Hoeffler (2002) and Fearon & Laitin (2003) they suggest that low incomes per capita facilitate easy recruitments for rebel groups as income opportunities are worse in the formal labour market. Poverty causes conflict because poor people have to fight for survival over limited available resources (Pinker 2011).

*Education* variable measures the duration in secondary education obtained from the World Development Indicators (WDIs). This variable has ambiguous results across literature. While Krueger & Maleckova (2003) find no correlation suggesting that increased education decreases terrorism, Collier & Hoeffler (2004) report that males enrolled in secondary education have a negative effect on conflict. Moreover, Reynal-Querol (2002a) find that the level of education is a significant determinant in reducing conflict, especially when not used in conjunction with income per capita. The inconsistent results make it difficult to infer a priori expectations, but we anticipate a negative relationship between education and conflict as proposed by Pinker (2011). He attributes the humanitarian revolution to the age of reasoning and enlightenment when literacy spread from the noble to the masses.

*Democracy* is obtained from the Polity IV Project (2010). 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 collectivities. A seven-category scale is used: 1 (unlimited authority of the decision-making body) to 7 (executive parity, i.e. the accountability groups have effective control over the executive). The variable is normalised to between zero and one.

According to Pinker (2011) democratic countries tend to avoid disputes which may hinder trade relations

and welfare gains. This is confirmed by Beck & Baum (2000), Choi (2010) and Collier & Hoeffler (2004) who find a significant negative democracy-conflict relationship. Evidence by Reynal-Querol (2005) finds that democracy along with political systems that are more inclusive are less prone to civil war. Others find no significant effect on conflict (Barbieri & Reuveny 2005; Elbadawi & Sambanis 2002; Fearon & Laitin 2003; Miguel *et al.* 2004), whereas Olzak (2011) reports that democracy actually raises the severity of levels of ethnic conflict. We expect increased democracy to be associated with lower episodes of conflict.

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 value of the "prize" of controlling state power (Fearon & Laitin 2003). These rents also fund rebel groups for those authoritarian incumbents wanting to intimidate civilians (Barbieri & Reuveny 2005; Collier & Hoeffler 2004). Furthermore, Pinker (2011) states that the vulnerability of war is worsened by natural resources as the wealth perpetuates the incentive to stay in power. We expect a positive resource rents-conflict relationship. All the variables are logged except conflict and democracy.

## 2.2 Descriptive Statistics

Table 1 offers a brief overview of the data. The descriptive statistics indicate the heterogeneity that is present between the countries, given the large variances within the variables. Interestingly, the countries which are more globalised (Mauritius at 68.06), with higher incomes per capita, stronger constraints on the executive, lower resource rents and lower population also exhibit lower magnitudes of conflict (e.g. Botswana, Cape Verde, Mauritius and South Africa) as proposed by Pinker (2011). On the other hand, the countries with less globalisation (Eritrea at 11.92), lower incomes per capita and weak executive constraints exhibit more conflict (e.g. Ethiopia, Chad and Sudan). The correlation matrix also indicates that these determinants are in line with the a priori expectations, while resource rents work against the other determinants and foster conflict.

**Table 1: Descriptive Statistics and Correlation Matrix**

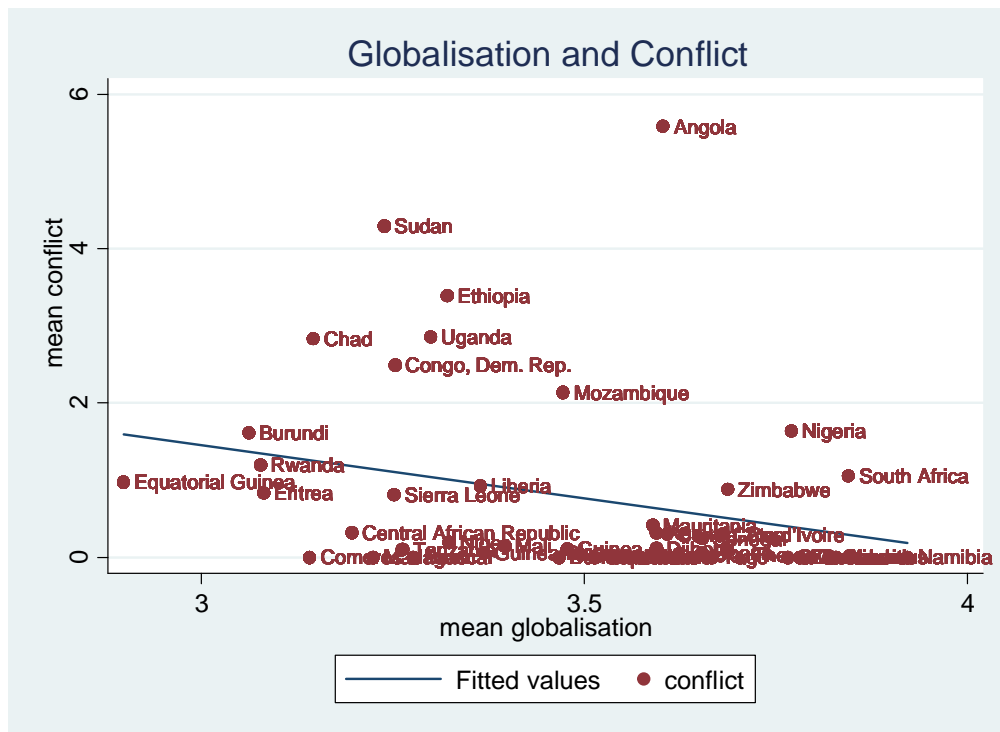
Variable	Obs	Mean	Std. Dev.	Min	Max	Sources
Conflict	1812	0.85	1.81	0	10	Center for Systemic Peace
Globalisation	1838	33.76	10.15	11.92	68.06	Dreher <i>et al.</i> 2008
Social glob.	1838	23.68	11.00	5.98	63.96	Dreher <i>et al.</i> 2008
Political glob.	1879	43.89	18.15	3.99	90.95	Dreher <i>et al.</i> 2008
Economic glob.	1550	37.81	14.87	9.43	77.85	Dreher <i>et al.</i> 2008
Gdpcap	1946	2130.48	3468.36	160.93	32241.09	Penn World Tables 7.1
Democracy	1812	3.02	1.93	1	7	Polity IV Project
Education	1927	6.26	0.78	4	8	World Development Indicators
Resource rents	1772	11.92	14.70	0	100.37	World Development Indicators

	Conflict	Globalisation	Social glob.	Political glob.	Economic glob.	Gdpcap	Democracy	Education	Resource Rents
Conflict	1.000								
Globalisation	-0.205*	1.000							
Social glob.	-0.349*	0.692*	1.000						
Political glob.	-0.066*	0.601*	0.021	1.000					
Economic glob.	-0.104*	0.829*	0.610*	0.143*	1.000				
Gdpcap	-0.139*	0.356*	0.610*	-0.091*	0.470*	1.000			
Democracy	-0.110*	0.441*	0.408*	0.202*	0.403*	0.194*	1.000		
Education	-0.056*	-0.299*	-0.227*	0.068*	-0.459*	-0.157*	-0.207*	1.000	
Resource rents	0.130*	0.059*	-0.193*	0.112*	0.284*	0.098*	-0.200*	0.073*	1.000

\* significant at 5%

A negative linear relationship between the mean globalisation and mean magnitude of conflict is depicted in Figure 2, confirming the correlation in Table 1. The graph also shows the countries with higher severity of conflict are the ones that have also had longer durations of conflict such as Angola, DRC, Ethiopia, Mozambique and Sudan. The remaining countries range between 0 and 2 for levels of severity during conflict times.



**Figure 2: Globalisation and Conflict, 1970-2010** (Source: Dreher *et al.* 2008; Center for Systemic Peace)



## 2.3 Methodology

The baseline model specification is:

$$conflict_{it} = \alpha_i + \delta_t + \beta_1 \ln globalisation_{it} + \beta_2 \ln gdp_{cap_{it}} + \beta_3 democracy_{it} + \beta_4 \ln education_{it} + \beta_5 \ln resource_{it} + \mu_{it} \quad (1)$$

To investigate the causal relationship between globalisation and conflict we use panel data analysis with country ( $\alpha_i$ ) and time ( $\delta_t$ ) fixed effects to capture heterogeneous characteristics specific to each individual country and time variations specific to some year. We also include fixed effects with instrumental variables (FE-IV) to minimise both heterogeneity and reverse causality.

We expect endogeneity to be present in globalisation given that several studies find evidence that war reduces trade (Barbieri & Levy 1999; Dixon & Moon 1993; Mansfield 1994). As far as the literature reviewed that uses a similar globalisation index to ours, none have been able to find a suitable instrument and rather choose to lag the variable as a means of minimising endogeneity (Choi 2010; Flaten & de Soysa 2012; Hwang 2012; Olzak 2011).

Finding valid instruments that are external to the model is difficult, especially when using a broad measure as globalisation. The validity and reliability of the instrumental variables approach depends on the selection of the instruments which should satisfy the following criteria: i) the instrument must be correlated with the endogenous variable, in our case the level of globalisation; and ii) the instrument must not have a direct causal effect on the dependent variable. These criteria imply that any changes in conflict that may result from changes in the values of the instrument must be attributable to globalisation only. This type of method allows for consistent estimation in large samples. We use two instruments that in our opinion are exogenous to the model<sup>1</sup>. We enter the instruments in separate regressions to avoid overidentification of the model.

The first external instrument is a measure of China's trade as a percentage of gross domestic product from the WDIs. China's trade and investment influence has grown in Africa over the years as African countries seek an alternative to the Western trade partners while China's growing dependence on energy sources such as oil has increased the benefits of China-Africa trade (Renard 2011). We do not expect trade from China to influence conflict in Africa as relations with China are dependent on less restrictive terms compared to the European and American partners. According to Kaplinsky and Morris (2009) Chinese firms are less averse to risk than their Western counterparts and less constrained by environmental and social concerns. As such China has been known to trade with both democratic and undemocratic countries in Africa over the years (Renard 2011). We however expect a direct relationship between trade with China and globalisation in Africa. Trading with China has increased both economic and social openness in sub-Saharan Africa through increased export volumes, lower import prices, investments in infrastructure and

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<sup>1</sup>We also use globalisation lagged twice as an instrument. Results remain in line with those reported in the paper and are available on request.

transfer of technology and technical expertise.

The second instrument is taken from the Center for Global Development and measures the net aid transfers at 2011 constant US\$ (Roodman 2005). We interact this variable with a post Cold War dummy to capture the period after the Cold War (*aid\*postcoldwar*).

According to Dunning (2004), during the Cold War the recipient countries enjoyed more bargaining power as both the Soviet Union and the United States competed for influence on the African continent. As a result the Western donors did not put much emphasis on the conditions for aid. However, African leaders lost their leverage after the Cold War as only Western donors were offering aid thus making the donors' threats to condition aid on the adoption of development reforms more credible. Evidence by Alesina and Dollar (2000) also finds that foreign aid was sometimes dictated by political and strategic considerations, however countries that adopted the proposed reforms received an increase in aid immediately afterwards. We therefore do not expect aid in the post Cold War period to have any direct causal relationship with conflict as this particular aid came attached with conditions for reform to improve economic development. Instead we expect aid after the Cold War to directly influence globalisation through economic openness. Analysis by Cali and Te Velde (2010) shows that various types of aid for trade have helped recipient countries' trade performances. They find that aid facilitates trade, especially aid channeled to economic infrastructure, as it reduces the costs of trading and improves exports<sup>2</sup>.

## 3 Results

### 3.1 Baseline analysis

Table 2 reports the pooled OLS and fixed effects estimators. The results indicate that overall globalisation is significant in reducing conflict within the region, results which are similar to Choi (2010) and Flaten & De Soysa (2012). This result is also in line with Pinker's (2011) hypothesis that the processes encompassed in the rise of globalisation such as trade and technology, infrastructure which encourages flows of people and dissemination of information, as well as relations with international organisations and foreign businesses have developed a pacifying effect on conflict over time. A 10% increase in the level of globalisation will reduce the magnitude of conflict by about 0.01.

Income per capita is consistent with previous literature and enters negatively and significantly across both models. A 10% increase in income per capita decreases the magnitude of conflict by around 0.2% to 1%. Most studies find that countries with low incomes per capita are the most likely to have civil wars and longer durations of war (Collier & Hoeffler 1998, 2002, 2004; Fearon & Laitin 2003; Miguel et al. 2004). The adverse income opportunities available to people increase the opportunity cost of engaging in disputes or joining rebel groups. According to Pinker (2011) the more affluent countries such as England and Holland

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<sup>2</sup>See also Stiglitz & Charlton (2006) and Wagner (2003).

during the 17<sup>th</sup> century were also the leaders in abolishing cruel practices such as torture, and today the risk of civil war in wealthy countries is essentially zero. Wealthier countries are also able to afford a bigger military force to keep the peace (Collier & Hoeffler 2002; Pinker 2011). He further shows evidence that currently wars take place mainly in poor countries found in Central and East Africa, Southwest Asia and Middle East. Analysis by Collier & Hoeffler (2002) confirms that the region's poor economic performance attributed to the rising trend of African conflict during the 1980s and 1990s.

Democracy and resource rents are insignificant determinants of conflict, while education is negative and sometimes significant. Education equips people with skills that they can use in employment rather than "brigandage and warlording" and keeps teenage boys off the streets and out of militia (Pinker 2011; Collier & Hoeffler 2004; Collier *et al.* 2004).

**Table 2:** Pooled OLS and Fixed Effects

	1	2	3	4	5	6	7	8	9	10
CONFLICT	POLS	POLS	POLS	POLS	POLS	FE	FE	FE	FE	FE
Globalisation	-0.116*** (0.013)	-0.085*** (0.014)	-0.083*** (0.015)	-0.100*** (0.016)	-0.091*** (0.015)	-0.158** (0.064)	-0.120* (0.067)	-0.121* (0.067)	-0.126* (0.068)	-0.143* (0.078)
Gdpcap		-0.026*** (0.005)	-0.025*** (0.006)	-0.025*** (0.006)	-0.026*** (0.005)		-0.098*** (0.035)	-0.097*** (0.035)	-0.098*** (0.035)	-0.098*** (0.036)
Democracy			-0.005 (0.013)	-0.014 (0.014)	-0.000 (0.016)			0.034 (0.041)	0.043 (0.041)	0.046 (0.030)
Education				-0.159*** (0.032)	-0.130*** (0.033)				-0.120 (0.184)	0.004 (0.170)
Resource rents					0.005 (0.004)					0.018 (0.011)
Observations	1,757	1,757	1,757	1,716	1,624	1,757	1,757	1,757	1,716	1,624
F test	85.22***	52.29***	35.08***	28.75***	23.99***	4.28***	120.19***	752.72***	4.34***	4.91***
R-squared	0.043	0.053	0.054	0.065	0.068	0.044	0.099	0.101	0.105	0.126
Number of i						45	45	45	44	44
Country FE						YES	YES	YES	YES	YES
Year FE						YES	YES	YES	YES	YES

Coefficients reported. Robust standard errors in parentheses. \*\*\* p<0.01, \*\* p<0.05, \* p<0.1

Table 3 reports the fixed effects with instrumental variables model. The results are similar to the previous estimators in that overall globalisation reduces conflict. The coefficients are marginally larger due to the external variation from the instruments which reduces the bias that may have entered the model through reverse causality. In general, globalisation has relatively larger coefficients than the other determinants indicating that it explains a significant part of the decrease in the magnitude of conflict.

Income per capita also remains robust in decreasing the scale of conflict. Education is mostly negative again but loses significance.

The coefficients for democracy and resource rents are now positive and significant. The results for democracy may seem counter intuitive to literature (Choi 2010; Collier & Hoeffler 2004) but are not unique as several papers also find that conflict is not significantly associated with democracy (Elbadawi & Sambanis 2002; Fearon & Laitin 2003; Miguel *et al.* 2004). 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 (Barbieri & Reuveny 2005; Reynal-Querol 2002a). Even though Pinker (2011) attributes

longer periods of democracy to less conflict, he highlights that democracy is delayed in anocracies (semi-democracies) where weak governments do not encourage better institutions but prefer to protect their positions of power. Evidence by Hegre *et al.* (2001) and Reynal-Querol (2002b) find that mid-level democracies are more prone to civil wars than full democracies or full autocracies. Moreover Olzak (2011) attributes the positive democracy association to the state capacity (or state strength) that strong states compared to weak states have the capacity to suppress civil wars based on their superior military and policing strength, and strong bureaucratic administrations. Given the region under review, the relatively low average for executive constraints may contribute to the poor predictive power in reducing conflict.

According to Collier & Hoeffler (2004; 2006) not only do higher levels of resource rents provide motivation and opportunities for rebel groups to support themselves through expropriation, but they can also be used to fund rebel groups for those wanting to intimidate civilians or control state power (e.g. diamond-financed rebellions in Sierra Leone and Angola, oil conflict in Nigeria). Moreover Pinker (2011) contends that countries with abundance of nonrenewable easily controllable resources are prone to violence.

The identifying instruments in the first stage regression are statistically significant, as well as the F-test for joint significance which minimises the issues of weak instruments. Trade with China significantly increases Africa's globalisation, as does aid after the Cold War. In both instances economic development in sub-Saharan Africa has benefited from trading with the East, as well as financial assistance from the West.

**Table 3: Fixed Effects with Instrumental Variables**

	1	2	3	4	5	6	7	8	9	10
CONFLICT	FE-IV	FE-IV	FE-IV	FE-IV	FE-IV	FE-IV	FE-IV	FE-IV	FE-IV	FE-IV
Globalisation	-0.100*** (0.023)	-0.061*** (0.023)	-0.094*** (0.028)	-0.102*** (0.028)	-0.118*** (0.030)	-0.098*** (0.024)	-0.077*** (0.024)	-0.120*** (0.032)	-0.150*** (0.034)	-0.216*** (0.040)
Gdpcap		-0.105*** (0.012)	-0.101*** (0.012)	-0.101*** (0.012)	-0.101*** (0.012)		-0.093*** (0.010)	-0.090*** (0.010)	-0.090*** (0.010)	-0.088*** (0.010)
Democracy			0.047** (0.019)	0.054*** (0.020)	0.060*** (0.020)			0.070*** (0.021)	0.087*** (0.022)	0.112*** (0.023)
Education				-0.021 (0.069)	0.010 (0.071)				-0.191*** (0.063)	-0.083 (0.064)
Resource rents					0.011** (0.005)					0.025*** (0.004)
Observations	1,286	1,286	1,286	1,257	1,237	1,734	1,734	1,734	1,693	1,601
F test	19.26***	57.94***	40.65***	30.72***	24.74***	15.99***	65.31***	45.20***	36.12***	33.04***
R-squared	0.036	0.093	0.100	0.103	0.106	0.005	0.063	0.060	0.062	0.058
Number of i	45	45	45	44	44	45	45	45	44	44
Country FE	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
<b>First Stage Regressions</b>										
Chinatrade	0.322*** (0.006)	0.311*** (0.006)	0.303*** (0.007)	0.301*** (0.008)	0.299*** (0.008)					
Aid*post-Cold War						0.0003*** (9.02e-06)	0.0003*** (8.89e-06)	0.0002*** (9.02e-06)	0.0002*** (9.25e-06)	0.0002*** (0.00001)
F test weak instruments	2394.49***	1306.08***	874.94***	650.16***	505.82***	1016.31***	557.67***	487.22***	370.45***	279.03***

Coefficients reported. Standard errors in parentheses. \*\*\* p<0.01, \*\* p<0.05, \* p<0.1

We extend our analysis by decomposing the globalisation index into its three key components. The results indicate that social globalisation has a larger effect in reducing conflict than the other two sub-indices. According to Pinker (2011) and Flaten & de Soysa (2012), the increase in flow of people across borders and

**Table 4:** POLS, Fixed Effects and FE-IV

	1	2	3	4	5	6	7	8	9	10	11	12
CONFLICT	POLS	POLS	POLS	FE	FE	FE	FE-IV	FE-IV	FE-IV	FE-IV	FE-IV	FE-IV
Social globalisation	-0.167*** (0.015)			-0.106 (0.082)			-0.139*** (0.036)			-0.247*** (0.046)		
Political globalisation		-0.003 (0.010)			-0.085 (0.051)			-0.080*** (0.022)			-0.176*** (0.034)	
Economic globalisation			-0.046*** (0.016)			-0.017 (0.048)			-0.118*** (0.041)			-0.223*** (0.046)
Gdpcap	0.005 (0.007)	-0.039*** (0.005)	-0.030*** (0.006)	-0.096** (0.036)	-0.096** (0.036)	-0.143** (0.054)	-0.094*** (0.013)	-0.104*** (0.012)	-0.215*** (0.020)	-0.074*** (0.012)	-0.084*** (0.011)	-0.132*** (0.015)
Democracy	0.013 (0.015)	-0.031* (0.018)	-0.007 (0.017)	0.051 (0.031)	0.036 (0.031)	0.059 (0.036)	0.071*** (0.022)	0.051*** (0.019)	0.089*** (0.024)	0.108*** (0.023)	0.117*** (0.025)	0.141*** (0.028)
Education	-0.175*** (0.032)	-0.080** (0.033)	-0.127*** (0.042)	0.024 (0.177)	0.050 (0.144)	0.060 (0.168)	0.041 (0.070)	0.042 (0.071)	0.014 (0.081)	-0.020 (0.061)	-0.021 (0.061)	-0.114 (0.076)
Resource rents	-0.004 (0.004)	0.003 (0.005)	0.005 (0.004)	0.015 (0.011)	0.015 (0.011)	0.018 (0.014)	0.009* (0.004)	0.008* (0.005)	0.015*** (0.006)	0.018*** (0.004)	0.022*** (0.004)	0.032*** (0.006)
Observations	1,624	1,645	1,429	1,624	1,645	1,429	1,237	1,246	1,078	1,601	1,622	1,409
F test	48.78***	17.49***	14.80***	4.84***	5.08***	4.60***	24.84***	24.04***	41.44***	33.62***	31.22***	33.49***
R-squared	0.162	0.048	0.050	0.124	0.128	0.133	0.110	0.105	0.139	0.074	0.003	0.033
Number of i				44	45	38	44	45	38	44	45	38
Country FE				YES	YES	YES	YES	YES	YES	YES	YES	YES
Year FE				YES	YES	YES						
<b>First Stage Regressions</b>												
Chinatrade							0.255*** (0.011)	0.422*** (0.013)	0.247*** (0.014)			
Aid*post-Cold War										0.0002*** (9.98e-06)	0.0002*** (0.00002)	0.0002*** (0.00001)
F test weak instruments							247.79***	337.18***	223.79***	212.03***	136.85***	210.66***

Coefficients reported. Robust standard errors in parentheses. \*\*\* p<0.01, \*\* p<0.05, \* p<0.1

the increased access to information through books, televisions, internet, newspapers has improved people's tolerance and empathy of one another and brought in a wave of humanitarianism and rights movements across the globe. For example, campaigns against war may not have begun were it not for the violent images that were shown in newspapers, on televisions, or the reports over the radio.

Political globalisation has also encouraged closer political ties between governments across the globe resulting in fewer disputes (Flaten & de Soysa 2012). The need for political allies rather than foes has negated the incentives for engaging in conflict. Furthermore Pinker (2011) attributes the increase in peace at the end of the 20<sup>th</sup> century to the end of the Cold War and increase in international organisations, especially peacekeeping forces. The international organisations mediate disputes among member nations, while the presence of peacekeeping forces acts as a deterrence to small acts of violence that can escalate into conflict (Pinker 2011). The coefficient for political globalisation, though negative is not as robust.

Economic globalisation also plays a relatively significant role in the decrease of conflict. The use of force prevents the gains from trade thus discouraging mutually beneficial economic ties (Hegre *et al.* 2010; Pinker 2011).

The rest of the controls are generally in line with previous results. Both instruments are valid and statistically significant<sup>3</sup>.

<sup>3</sup>The results remain robust and the magnitudes of the coefficients do not change significantly when we: (i) use the lag of globalisation and its sub-indices (results also robust for further lags) to account for delays in the effect of globalisation on conflict; (ii) use the external instruments lagged once against contemporaneous globalisation. Results are available on request.

In the post colonial decades, civil wars were breaking out at a higher rate than they were ending such that by the late 1990s, an average civil war had been going on for over a decade (Pinker 2011). In order to account for this persistence in conflict we specify a dynamic model by including the lagged dependent variable. We report the results in Table 5 and Table 6. Overall globalisation remains significant in reducing conflict with social globalisation accounting for a significantly larger pacifying effect than political and economic openness. The controls remain in line with the contemporaneous results.

**Table 5: Dynamic Specification**

CONFLICT	1	2	3	4	5	6	7	8
	POLS	POLS	POLS	POLS	FE	FE	FE	FE
Globalisation	-0.017** (0.007)				-0.028* (0.014)			
Social globalisation		-0.027*** (0.007)				-0.041** (0.018)		
Political globalisation			-0.000 (0.004)				-0.012* (0.007)	
Economic globalisation				-0.011 (0.008)				-0.008 (0.010)
Gdpcap	-0.003 (0.002)	0.001 (0.003)	-0.005** (0.002)	-0.003 (0.003)	-0.022* (0.013)	-0.019 (0.012)	-0.023* (0.013)	-0.039** (0.017)
Democracy	-0.002 (0.007)	-0.001 (0.007)	-0.009 (0.007)	-0.004 (0.008)	0.015 (0.010)	0.018 (0.012)	0.010 (0.011)	0.010 (0.011)
Education	-0.025* (0.013)	-0.032** (0.013)	-0.017 (0.012)	-0.025 (0.016)	-0.017 (0.059)	-0.010 (0.058)	0.006 (0.050)	0.002 (0.060)
Resource rents	-0.001 (0.002)	-0.002 (0.002)	-0.001 (0.002)	-0.001 (0.002)	0.003 (0.002)	0.003 (0.002)	0.003 (0.002)	0.002 (0.002)
Conflict <sub>t-1</sub>	0.875*** (0.025)	0.860*** (0.026)	0.879*** (0.024)	0.884*** (0.025)	0.763*** (0.033)	0.761*** (0.032)	0.767*** (0.033)	0.761*** (0.036)
Observations	1,591	1,591	1,611	1,400	1,591	1,591	1,611	1,400
F test	243.87***	390.57***	242.44***	224.70***	142.03***	441.31***	441.00***	389.01***
R-squared	0.796	0.798	0.793	0.805	0.631	0.632	0.629	0.633
Number of i					44	44	45	38
Country FE					YES	YES	YES	YES

Coefficients reported. Robust standard errors in parentheses. \*\*\* p<0.01, \*\* p<0.05, \* p<0.1

The inclusion of the instruments improves the efficiency of our estimators as indicated by the larger significant coefficients for globalisation and its sub-indices in Table 6. The openness indicators remain robust in decreasing the severity of conflict in the region.

**Table 6:** Dynamic Specification with instruments

	1	2	3	4	5	6	7	8
CONFLICT	FE-IV	FE-IV	FE-IV	FE-IV	FE-IV	FE-IV	FE-IV	FE-IV
Globalisation	-0.050** (0.020)				-0.106*** (0.027)			
Social globalisation		-0.058** (0.023)				-0.119*** (0.031)		
Political globalisation			-0.034** (0.014)				-0.088*** (0.024)	
Economic globalisation				-0.053** (0.026)				-0.104*** (0.030)
Gdp	-0.018** (0.008)	-0.016* (0.008)	-0.020** (0.008)	-0.043*** (0.013)	-0.015** (0.007)	-0.009 (0.008)	-0.014* (0.007)	-0.029*** (0.010)
Democracy	0.019 (0.013)	0.024* (0.014)	0.015 (0.012)	0.027* (0.015)	0.050*** (0.016)	0.048*** (0.015)	0.054*** (0.017)	0.058*** (0.018)
Education	-0.010 (0.045)	0.004 (0.044)	0.003 (0.045)	-0.025 (0.051)	-0.052 (0.042)	-0.021 (0.041)	-0.014 (0.040)	-0.079 (0.050)
Resource rents	0.001 (0.003)	0.000 (0.003)	-0.000 (0.003)	0.003 (0.004)	0.007*** (0.003)	0.005* (0.003)	0.006** (0.003)	0.010*** (0.004)
Conflict <sub>t-1</sub>	0.771*** (0.018)	0.768*** (0.019)	0.772*** (0.019)	0.770*** (0.020)	0.749*** (0.017)	0.744*** (0.017)	0.746*** (0.018)	0.754*** (0.018)
Observations	1,235	1,235	1,244	1,077	1,570	1,570	1,590	1,381
F test	359.19***	359.69***	357.90***	336.08***	413.90***	416.98***	400.88***	359.60***
R-squared	0.645	0.646	0.643	0.659	0.615	0.618***	0.599	0.607
Number of i	44	44	45	38	44	44	45	38
Country FE	YES	YES	YES	YES	YES	YES	YES	YES
<b>First Stage Regressions</b>								
Chinatrade	0.294*** (0.008)	0.251*** (0.011)	0.411*** (0.012)	0.248*** (0.014)				
Aid*post-Cold War					0.0002*** (0.00001)	0.0002*** (0.00001)	0.0002*** (0.00002)	0.0002*** (0.00001)
F test weak instruments	436.67***	212.46***	295.27***	186.42***	232.35***	178.03***	115.21***	169.83***

Coefficients reported. Standard errors in parentheses. \*\*\* p&lt;0.01, \*\* p&lt;0.05, \* p&lt;0.1

### 3.2 Additional analysis

As a final analysis we separate the conflict variable into interstate and intrastate wars. Intrastate conflict includes civil and ethnic wars which were quite common to the sub-Saharan region during the period under review. Results indicate that overall globalisation plays a more significant role in decreasing the magnitudes of intrastate wars than interstate wars. This is contrary to Olzak (2011) who finds that the composite measure of globalisation increases fatalities from ethnic armed conflicts, driven by political and social globalisation. She argues that globalisation creates opportunities that may encourage minorities to mobilise against regimes that are not inclusive. However, our results suggest otherwise. The infrastructure and institutions that come with globalisation have contributed to a civilising process which promotes less violence.

**Table 7: Civil vs Interstate Conflict**

	INTRASTATE CONFLICT								INTERSTATE CONFLICT							
	1	2	3	4	5	6	7	8	1	2	3	4	5	6	7	8
	POLS	POLS	POLS	POLS	FE	FE	FE	FE	POLS	POLS	POLS	POLS	FE	FE	FE	FE
Globalisation	-0.082*** (0.014)				-0.139* (0.077)				-0.008** (0.004)				-0.004 (0.008)			
Social globalisation		-0.164*** (0.015)				-0.111 (0.082)				-0.003* (0.002)				0.005 (0.008)		
Political globalisation			-0.002 (0.009)				-0.077 (0.051)				-0.001 (0.002)				-0.008 (0.006)	
Economic globalisation				-0.040** (0.016)				-0.028 (0.047)				-0.006*** (0.002)				0.011 (0.007)
Gdpcap	-0.025*** (0.005)	0.007 (0.007)	-0.036*** (0.005)	-0.028*** (0.006)	-0.099*** (0.037)	-0.097** (0.037)	-0.098** (0.037)	-0.142** (0.056)	-0.002* (0.001)	-0.002*** (0.001)	-0.003*** (0.001)	-0.002* (0.001)	0.001 (0.003)	0.001 (0.003)	0.002 (0.003)	-0.001 (0.003)
Democracy	-0.002 (0.016)	0.014 (0.015)	-0.030* (0.018)	-0.008 (0.017)	0.042 (0.029)	0.047 (0.030)	0.033 (0.030)	0.061* (0.035)	0.001 (0.002)	-0.001 (0.002)	-0.001 (0.001)	0.001 (0.001)	0.004 (0.005)	0.004 (0.005)	0.003 (0.005)	-0.003 (0.003)
Education	-0.114*** (0.033)	-0.161*** (0.032)	-0.070** (0.033)	-0.111*** (0.041)	0.049 (0.154)	0.069 (0.160)	0.086 (0.131)	0.079 (0.157)	0.016*** (0.004)	0.014*** (0.004)	0.010*** (0.003)	0.015*** (0.004)	-0.045 (0.032)	-0.045 (0.032)	-0.036 (0.028)	-0.019 (0.024)
Resource rents	0.004 (0.004)	-0.004 (0.004)	0.002 (0.005)	0.004 (0.004)	0.017 (0.012)	0.014 (0.012)	0.014 (0.012)	0.018 (0.015)	0.001** (0.000)	0.000 (0.000)	0.000 (0.000)	0.001*** (0.000)	0.001 (0.001)	0.001 (0.001)	0.001 (0.001)	-0.000 (0.001)
Observations	1,624	1,624	1,645	1,429	1,624	1,624	1,645	1,429	1,624	1,624	1,645	1,429	1,624	1,624	1,645	1,429
F-test	21.34***	46.09***	15.31***	12.98***	4.97***	4.96***	5.06***	4.61***	3.42***	3.40***	3.34***	2.90**	2.34***	2.35***	2.39***	1.72***
R-squared	0.060	0.159	0.043	0.044	0.127	0.127	0.128	0.133	0.011	0.008	0.007	0.013	0.064	0.064	0.065	0.055
Number of i					44	44	45	38					44	44	45	38
Country FE		YES	YES	YES	YES	YES	YES	YES		YES	YES	YES	YES	YES	YES	YES
Year FE					YES	YES	YES	YES					FE	YES	YES	YES

Coefficients reported. Robust standard errors in parentheses. \*\*\* p<0.01, \*\* p<0.05, \* p<0.1

Table 8 reports the fixed effects with instrumental variables. The results are improved by the instruments and we find that being more globalised reduces intrastate violence within the region with social globalisation explaining a significant part. 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 increase in international organisations.

**Table 8: With Instruments**

	INTRASTATE CONFLICT								INTERSTATE CONFLICT							
	1	2	3	4	5	6	7	8	1	2	3	4	5	6	7	8
	FE-IV	FE-IV	FE-IV	FE-IV	FE-IV	FE-IV	FE-IV	FE-IV	FE-IV	FE-IV	FE-IV	FE-IV	FE-IV	FE-IV	FE-IV	FE-IV
Globalisation	-0.106*** (0.029)				-0.195*** (0.039)				-0.012 (0.010)				-0.021* (0.011)			
Social globalisation		-0.124*** (0.034)				-0.223*** (0.044)				-0.014 (0.012)				-0.024* (0.013)		
Political globalisation			-0.072*** (0.021)				-0.160*** (0.033)				-0.009 (0.007)				-0.016* (0.009)	
Economic globalisation				-0.118*** (0.040)				-0.207*** (0.045)				-0.000 (0.011)				-0.016 (0.011)
Gdpcap	-0.101*** (0.012)	-0.096*** (0.012)	-0.104*** (0.012)	-0.209*** (0.020)	-0.090*** (0.010)	-0.077*** (0.011)	-0.086*** (0.011)	-0.131*** (0.014)	0.001 (0.004)	0.001 (0.004)	0.000 (0.004)	-0.006 (0.005)	0.002 (0.003)	0.003 (0.003)	0.002 (0.003)	-0.001 (0.003)
Democracy	0.052*** (0.019)	0.062*** (0.021)	0.044** (0.019)	0.087*** (0.024)	0.099*** (0.023)	0.096*** (0.022)	0.104*** (0.024)	0.132*** (0.028)	0.008 (0.006)	0.009 (0.007)	0.007 (0.006)	0.002 (0.007)	0.012* (0.007)	0.012* (0.007)	0.012* (0.007)	0.010 (0.007)
Education	0.097 (0.068)	0.124* (0.067)	0.126* (0.068)	0.069 (0.079)	-0.018 (0.062)	0.038 (0.059)	0.032 (0.059)	-0.066 (0.074)	-0.087*** (0.023)	-0.083*** (0.022)	-0.083*** (0.022)	-0.055** (0.022)	-0.064*** (0.018)	-0.058*** (0.018)	-0.053*** (0.017)	-0.048*** (0.018)
Resource rents	0.010** (0.004)	0.008* (0.004)	0.008* (0.004)	0.015*** (0.006)	0.024*** (0.004)	0.018*** (0.004)	0.021*** (0.004)	0.031*** (0.005)	0.001 (0.001)	0.000 (0.001)	0.000 (0.001)	0.000 (0.002)	0.001 (0.001)	0.000 (0.001)	0.001 (0.001)	0.001 (0.001)
Observations	1,237	1,237	1,246	1,078	1,601	1,601	1,622	1,409	1,237	1,237	1,246	1,078	1,601	1,601	1,622	1,409
F test	26.81***	26.99***	25.98***	42.09***	34.51***	35.21***	32.87***	34.02***	3.32***	3.31***	3.35***	2.04*	2.85**	2.84**	2.56**	1.63
R-squared	0.113	0.119	0.110	0.144	0.071	0.089	0.020	0.023	0.013	0.010	0.014	0.010	0.019	0.011	0.0001	0.125
Number of i	44	44	45	38	44	44	45	38	44	44	45	38	44	44	45	38
Country FE	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
<b>First Stage Regressions</b>																
Chinatrade	0.300*** (0.008)	0.255*** (0.011)	0.422*** (0.013)	0.247*** (0.014)					0.300*** (0.008)	0.255*** (0.011)	0.422*** (0.013)	0.247*** (0.014)				
Aid*post-Cold War					0.0002*** (0.00001)	0.0002*** (9.98e-06)	0.0002*** (0.00002)	0.0002*** (0.00001)								
F test weak instruments	505.82***	247.79***	337.18***	223.79***	279.03***	212.03***	136.85***	210.66***	505.82***	247.79***	337.18***	223.79***	279.03***	212.03***	136.85***	210.66***

Coefficients reported. Standard errors in parentheses. \*\*\* p<0.01, \*\* p<0.05, \* p<0.1



## 4 Conclusion

Pinker's (2011) novel is dedicated to explaining the decline in violence witnessed over history. He attributes the declining trend to several global processes which have enhanced the influence of more passive human traits and made people less prone to conflict. We investigate his hypothesis and find that globalisation, particularly social globalisation, plays a significant role in reducing the magnitudes of conflict. Even when conflict-related control variables are added, globalisation emerges as the most robust and stronger predictor for less conflict. Income per capita also remains a significant determinant in reducing conflict in line with literature. These results indicate that Africa to a large extent is not unique to other developing regions and conforms to the pattern of conflict predicted by globalisation (Collier & Hoeffler 2002).

Democracy is not a sufficient condition to prevent conflict, but has to work in conjunction with strong governments to be effective. Evidence by Savun & Tirone (2011) indicates that democracy interacted with democracy promotion assistance decreases conflict by improving democratic governance. The same can be said for resource rents (Olzak 2011). Resource rents perpetuate wartime economies and increase the incentive to stay in power (Pinker 2011), especially in states with weak governments.

We are under no disillusion that global processes are volatile and the trend of violence can shift at any time. However, we contend that today's peace-promoting global forces are great enough to offset the destructive forces of globalisation, and according to Pinker (2011) if these conditions that pacify conflict persist, then episodes will remain low or decline further.

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