

Democracy, Development, and Armed Conflict *

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Abstract

The paper argues that democratic institutions become more effective as conflict-reducing mechanisms in the presence of elements of socio-economic development. An empirical analysis confirms that there is a strong interactive effect between development and democracy. Low-income democracies are at least as conflict-prone as low-income non-democracies, but high-income democracies have the lowest risk of war. Increasing without democratization, on the other hand, does little to reduce risk of internal armed conflict.

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1 Introduction

Civil wars are most likely to break out in semi-democracies and low-income countries, according to several studies (e.g., Hegre et al. 2001; Fearon and Laitin 2003; Collier and Hoeffler 2004). As a type of political regime, semi-democracies – call them ‘inconsistent’, or ‘anocracies’ or ‘intermediate’ – are consistently found to be more vulnerable to violent challenge than either democracies or autocracies. Poorer countries are widely associated with a greater risk of civil war than wealthier countries.

The statistical evidence seems more robust for the relationship between development and internal peace than for regime type. This has lead influential researchers to largely dismiss motivational factors as good explanations of internal conflict, and rather stress the importance of what determines the opportunities for opposition groups to organize rebellion. Collier and Hoeffler (2004) find that factors associated with opportunities have most explanatory power – variables such as low GDP per capita, primary commodity dependence, and low rates of secondary school enrollment all facilitate the financing of rebel organizations, and therefore reduce the predicted risk of conflict. Grievance variables such as the absence of a well-functioning democratic system does not clearly affect the risk of internal conflict.

Relatedly, Fearon and Laitin (2003) do not find that civil wars are more frequent in countries with broad political grievances such as the absence of democratic institutions. The variables that most clearly determine a high risk of civil war represent conditions that favor insurgency. The presence of rough terrain is one such condition. Another is GDP per capita, a variable they interpret as ‘a proxy for a state’s overall financial, administrative, police, and military capabilities’ and ‘mark more developed countries with terrain more “disciplined” by roads and rural society more penetrated by central administration’ (Fearon and Laitin 2003, 80).

Regime type and development, however, have so far been conceptualized in isolation as determinants of conflict onset. However, if one turns the attention away from semi-democracies and to the extremes of the regime type scale, then one may observe that democracy and development are fundamentally interlinked as they affect the conditions for conflict.

Table 1 expresses this basic observation. Based on the dataset described below, it compares the observed frequencies of onset of armed conflict for four combinations of development and democracy levels. The unit of observation is the country-decade, with data for the four decades 1965–1974, 1975–1984, 1985–1994, and 1995–2004.

Among low-income countries, 37.4% of non-democracies and 41.0% of democracies had at least one onset of conflict.¹ For these countries, democratic political institutions do

¹Low-income countries are defined as countries with average GDP per capita over the decade less than 800 USD, constant 1995 dollars. Democracies are defined as countries with average SIP-score (Gates et al. 2006) higher than 0.5. Country-decades are coded as in conflict if there was at least one

Table 1: Frequency of country-decades with at least one onset of internal armed conflict, by income and regime type, 1965–2004.

	Low-income countries		Middle- and high-income countries		Total
	Non-democracies	Democracies	Non-democracies	Democracies	
No conflict	92 (62.6%)	23 (59.0%)	79 (75.2%)	179 (88.2%)	373 (75.5%)
Conflict	55 (37.4%)	16 (41.0%)	26 (24.8%)	24 (11.8%)	121 (24.5%)
Total	147	39	105	203	494

nothing to reduce the risk of conflict. Among middle- and high-income countries, 24.8% of non-democracies had an onset of conflict, and as few as 11.8% of democracies. In this group, regime type makes a considerable difference. For both groups, development reduces the risk of conflict, but much more strongly for democracies than for non-democracies.

The pacifying potential of democracy seems to be fundamentally conditional on a country’s level of development. This interactive relationship has been noted by Hegre (2003) and more recently by Collier and Rohner (2008).² Both studies, however, tend to only focus at how this finding qualifies our understanding of democracies’ abilities to reduce internal conflict. But the interactive pattern should also qualify our thinking about why socio-economic development reduces the risk of conflict.

This article pursues this observation by building an argument for the mutually conditional effects of regime type and development on the risk of civil war, and by testing whether the relationship holds in analyses that take into account possible confounding variables. While trying to disentangle the relationship between democracy and development in their effects on the risk of conflict onset, we theorize how they condition the basic elements of civil war.

2 Development, Democracy, and Armed Conflict

The relationships between development, democracy, and domestic armed conflict are complex. We believe the most efficient avenue to understanding them is to identify conditions that must be in place for armed conflicts to erupt, and discuss the strategies that governments typically choose to prevent conflicts. We argue that these strategies routinely attempt to remove one or more of the conditions for war. In this section, we outline the conditions we regard as essential, discuss how different regime types deal with them, and finally show that the effectiveness of these strategies depend on the set of socio-economic factors we refer to as development.

We begin from the assumption that civil war in the form of organized armed opposition is detrimental to the interests of all regimes. The desired outcome for all regimes is

onset of UCDP/PRIO armed conflict (Gleditsch et al. 2002) during the decade. Details about coding etc. are given below.

²A similar interactive effect has been noted for interstate conflict by Mousseau (2000) and Mousseau, Hegre and Oneal (2003).

the same: an apparent civil peace. The strategies that democracies and autocracies employ to ensure relative peace, however, are quite different, and some of them are far from nonviolent. Democracies more often attempt to alter the motivations for rebellion than autocracies, for instance, whereas autocracies tend to curtail opportunities to organize.

2.1 The basic elements of civil war

Civil war is a violent conflict between the government of a state and an armed non-state organization, for which combat occurs primarily within the state's territory. The leadership and recruits of the non-state organization are drawn mostly from the territory of the state. In order to decompose the concept of civil war into useful analytical components, we begin from the understanding that civil war is a special case of something more general: protest or opposition against government policy. Short of civil war, political protest can take many forms.³ We consider civil war to be on the same continuum as other forms of political protest. However, for a challenge to the state to amount to a civil war, it requires four basic elements: 1) motivation for change, 2) organization, 3) a turn to violence, and 4) recruitment to violence. All elements are both necessary and sufficient for a civil war to break out.⁴

Motivation for change. Some set of conditions or events within a country gives rise to motivations for change among a segment of the population, or among a number of political entrepreneurs. Motivations for change encompass all reasons people have to challenge government policy or the government itself. Thus it includes aggrievement, disaffection, ideological programs, the pursuit of private gain, or a combination thereof. We define motivation for change as *the sense by a political actor that the private and/or public goods to which s/he feels entitled cannot be acquired and/or safeguarded in the existing distributive regime*. Three elements of the definition warrant elaboration: 'political actor', 'private and/or public goods', and 'distributive regime'.

Our political actor is someone who directly, or indirectly via representatives, interacts with agents of the state or the government in order to affect the distribution of private/public goods. A political actor is therefore any individual trying to influence the policies of government. Political actors may include potential rebel recruits, supportive segments of the populations, as well as potential rebel leaders – whether they be drawn from within or outside the political establishment.

We think of private and/or public goods as the range of goods that the government

³E.g., non-violent individual activism such as publishing critical op-eds, lobbying politicians, and financing opposition organizations; non-violent organized activism, such as political parties, trade unions, and other issue-specific organizations; violent individual activism, such as the solitary terrorist or the lone political assassin; or mob violence that lacks the degree of organization associated with civil wars.

⁴The basic elements of civil war are intended to be separable in an analytical sense. They may in reality be less separate and occur in a different order.

controls or affects the provision of. Hence, private and/or public goods may include wages, individual monetary rewards, and property, or political representation, resource access, regional autonomy, and basic human rights.

By using the term ‘distributive regime’ we mean to imply that we consider any political regime to be a distributor of private and public goods. A distributive regime may denote a particular government, in which case a change of government within the same institutional framework would amount to a change in distributive regime. A distributive regime may also denote a particular polity, in which case a change not of government, but of governance – that is a change in institutional structure towards democracy or autocracy – would constitute a change in distributive regime. Civil wars are fought for changes of distributive regimes in either sense.

Organization. For a civil war to be mounted, organization is needed.⁵ The element of organization refers to the cases where a core of actors organize a movement for the promotion of their cause. An organization may be mass-based or reserved for an elite, and may or may not initially be intended for the organized use of violence. Successful organization requires the freedom to do so.

Democracies allow the organization of most forms of opposition. In regimes where the organization of opposition is not allowed, motivations for change may get an organized expression where the state is too weak to employ effective counter-measures. The elements of motivation for change and organization cover all the instances where views in opposition to the government are given organized non-violent expression. Civil wars, however, require a turn to violence.

A turn to violence. This involves the realization or decision by the opposition leadership that the strategic aims of the opposition organization cannot be attained by peaceful means. The obstacles to the peaceful pursuit of one’s objectives are perceived to be too great. The motivation for change is given sufficient weight to be worth fighting for. This element refers to the choice to employ violence, and not the actual use of force. For that to come about one needs activists who are willing to do the fighting: rebel recruits.

Recruitment. Having turned to violence, an opposition organization requires footmen that are willing to do the fighting. These may be found among the members of the organization, or outside. The recruitment of fighters is a necessary condition for mounting an insurgency leading to civil war.⁶ If motivations and organization are present, if a strategic decision to use violence has been taken, then the recruitment to violence is the last of the four necessary and sufficient elements of civil war.

⁵Refs: Tarrow, Tilly.

⁶See Gates (2002) and Collier (2000) for a discussion of recruitment to rebel organizations.

The four basic elements of civil war can be thought of as circles that all have to overlap for civil war to break out. Remove one, two, or three of the basic elements, and other forms of political protest remain. Remove the element of organization, and one is left with mob violence. Remove both the elements of recruitment and organization, and one has violent individual activism. Remove the turn to violence and recruitment, and non-violent organized activism is left. Remove all save motivation for change, and political protest takes the form of non-violent individual activism.

Both democracy and development affect the basic elements of civil war. We define democracy as a political system where the executive is elected through open and regulated elections, some constraints on the executive are in place (most often in the form of a legislative body), and elections are open to a large proportion of the adult population and involves real competition between political parties. We use a combination of two widely used datasets as measure of the extent to which institutions in a country are democratic. We will use a looser definition of development. Countries are developed to the extent to which the economy is diversified and relies on human and financial capital rather than land and natural resources, and the extent to which the majority of the population is literate and educated. These traits of development are highly correlated and proxied by GDP per capita. In order to disentangle democracy and development as determinants of civil war, we consider how democracy and development are related to the risk of armed conflict separately before we turn to their interaction.

2.2 Democracy and civil war

How do democracies avoid civil war? Of the four elements that must be present for a campaign of opposition to qualify as civil war, democratic polities are particularly conducive to moderating *motivations for change* and reducing the incentives for a *turn to violence* (Gurr 1970; Muller and Weede 1990; Hegre et al. 2001).

Democracies moderate motivations for change primarily by fostering contentment with the procedures by which opinions are heard and rights are protected, and by distributing goods such that the majority of the citizens are content. Democratic governments are popularly accountable, both at and between elections. Their powers are constrained by the distribution of power over different branches of government. Individuals and minorities receive a minimum of constitutional protection. In the cases where political cleavages are structured by region or ethnic identity, democracies may ensure representation with institutionalized power-sharing mechanisms. In short, democratic polities use a range of means to keep people happy.

In addition to moderating motivations for change, democracies raise the relative costs of turning to violence for the pursuit of one's objectives. Peace is maintained because conflicting claims are adjudicated by majority votes or consensual agreement. Divergent

opinions are heard, and their influence on policy can be relatively effective. When there is discontent to be addressed – and there always is – democracies allow its organized expression and have mechanisms to translate expressions into policies that reflect the interests of the majority. Peaceful negotiation is both feasible and relatively low-cost.

The democratic civil peace has received support in a wide range of empirical studies. Studies of repression and political violence lend credibility to the relative benevolence of democratic regimes (Carey 2006; Melander 2005; Eck and Hultman 2007; Davenport and Armstrong 2004). However, the relationship between the level of democracy and the risk of conflict is somewhat ambiguous. One thing is the often noted ‘inverted-U relationship’: Inconsistent systems – political systems that are partly democratic and partly autocratic – have been shown to have a higher risk of conflict than systems that are consistently democratic *or* autocratic.⁷ The standard explanation is that inconsistent systems are not sufficiently democratic to successfully remove motivations for rebellion, and at the same time not sufficiently repressive to hinder the organization of rebel groups (Muller and Weede 1990). Fearon and Laitin (2003) add that the very fact that inconsistent systems are inconsistent reflect the serious underlying conflicts within the society and the political system, conflicts that easily can turn violent.

However, several democracies that are usually regarded to be consistent have had armed conflicts over the last six decades. The most well-known cases are India, Sri Lanka and Turkey. The Basque and Northern Ireland conflicts are other cases of armed conflicts in democracies, although they were in the form of terrorism rather than large-scale military action. In addition, the UCDP data set reports armed conflicts in Argentina (1973), Congo (1993), Gambia (1981), Indonesia (1999), Mali (1994), Nepal (1996), Niger 1992), Pakistan (1974, 1990, 1995), Panama (1989), Papua New Guinea (1975), Peru (1965, 1982), the Philippines (1970, 1993), Russia (1993, 1994, 1999), South Africa (1966, 1981), Trinidad (1990), Venezuela (1992), and Zimbabwe (1972). Some of these, such as Georgia, Mali, the Philippines in 1970, and Russia may be regarded as inconsistent. The remaining, however, satisfied at least nominally all the requirements of democracy as defined by the Polity and Polyarchy projects (Jagers and Gurr 1995; Vanhanen 2000). Why did these countries fail to moderate motivations for radical change, and why did the opposition choose not to use the democratic institutions in their efforts to reform?

The number of exceptions to the democracy-peace relationship indicate that regime type may not lower the risk of civil war irrespective of other conditions in a country. One remarkable characteristic of the list of exceptions is that lower-income democracies are over-represented. It may seem that the workings of the mechanisms for avoiding civil war in democracies is contingent on a high level of wealth and development. Below, we will look more closely at the conditions under which democracies are able to secure a domestic

⁷See Gates et al. (2006) for a justification of the terms ‘consistent’ and ‘inconsistent’.

peace.⁸

2.3 Development and civil war

High levels of national wealth and development, much like consistent democracy, are widely regarded as being important factors contributing to civil peace (Collier et al. 2003; Fearon and Laitin 2003; Hegre et al. 2001; Hibbs 1973). The positive association between, for instance, per capita income levels or the level of education and a low risk of civil war are very robust findings in recent large-N studies (Hegre and Sambanis 2006). Two of the most frequently cited theoretical linkages between development and the risk of civil war pertain to the elements of *recruitment* and *organization*. A third theoretical linkage regards the relative attraction of *turning to violence*.

The focus of Collier and Hoeffler (2004) on the opportunity costs of participating in insurgencies is particularly relevant to the recruitment to violence. They are less explicit as to how development affects organization or the incentives for using violence as a major policy tool. According to their ‘predation theory’, sufficient motivations or grievances always abound, and we should expect factors that *facilitate* rebellion to be better predictors than the intensity of motivational factors. Civil wars occur only where rebel groups may sustain their organization and activities.

Collier (2000) stresses the need for considerable organization for rebellions to be successful. In particular, recruits have to be paid a regular salary while fighting. Salary costs is a major budget item for rebel groups, especially in conflicts fought primarily with light weapons. Insurgencies, then, are least expensive and therefore most probable in countries where potential soldiers have low opportunity costs – that is, where the regular income they lose if they join a rebellion is low. In support of this, Collier and Hoeffler (2004) find that countries with low foregone earnings (proxied by per capita income), poor prospects for alternative occupations (proxied by the rates of male secondary school enrolment), and a dismal outlook for new income opportunities (proxied by economic growth), have a high risk of civil war. Their argument is thus given strong empirical support.

The elements of organization and recruitment to violence are also central in Fearon and Laitin (2003) interpretation of the relationship between development and internal conflict. They also argue that the opportunity to rebel is more important. However,

⁸It is not sufficient for governments to be popularly accountable and constrained, or for citizens to be secured a bundle of social and political rights. Governments must also be capable of actively affecting the societal distribution of resources, as well as of preventing abuses of one social group by another. Governmental capability is no direct function of democracy. Such capabilities involve stability in the sense of long-term credibility, consistency – that is the absence of severe conflict over institutional design, taxing capacity, and bureaucratic and military effectiveness (Hegre 2005, 21). If these aspects of governmental capability are to be present, then governments depend on a certain level of national wealth. Poor and underdeveloped democracies are more likely to have dysfunctional mechanisms for non-violent conflict resolution than the wealthy and developed ones.

they regard state weakness as the prime source of rebel opportunities, and regard per capita income primarily as a measure of government military capabilities rather than as a measure of opportunity costs. According to this perspective, rich states with a solid tax base are likely to have greater control over their territory. As per capita income increases, states gain greater administrative, military, and policing capabilities (Fearon and Laitin 2003, 80). Opportunities to organize and mount rebellions in high-capability countries should be greatly impaired, and that explains the low frequency of civil war observed in low-income countries.

Collier & Hoeffler and Fearon & Laitin alike assume that turning to violence is always a useful means of promoting a group's interest as long as the government is not too strong and the costs of rebelling are not too high. However, there is variation in the extent to which violence is a useful instrument and socio-economic factors is important to explain that variation. We may therefore identify a third conduit through which development affects a country's risk of rebellion: through the incentives for using physical force to gain access to resources. In the context of interstate conflict, Rosecrance (1986) argues that development increases the likelihood that states gain access to resources and markets through trade rather than through conquest. Particularly relevant to the relationship between development and civil war is his argument that high education levels increases the costs of holding territory and makes it economically non-profitable for a conqueror (that typically rules with weak legitimacy). This argument is equally relevant to domestic actors that aspire to power. One thing is that an educated population may more effectively organize resistance to rulers they perceive to be illegitimate or against their own interests. Another is that wealthy citizens typically own capital – financial or human – that they may move out of the country, or refuse to use in ways the rulers may profit from. In a society where large segments of the population have the power to withhold a considerable fraction of their produce, an attempt to take this produce by force is less profitable than in a society where the majority lives off the land. With sufficient military force, it is straightforward to steal grain, opium, and even oil, but not to twist the products of Silicon Valley out of their owners' hands. In such situations, profit-maximizing actors are better off investing in economic production than in appropriation. In short, this third effect of development fundamentally alters the incentives for using violence to obtain political or economic goals.

A series of empirical studies testify to the relationship between various measures of development and the absence of civil war (Hibbs 1973; Hegre et al. 2001; Fearon and Laitin 2003; Collier and Hoeffler 2004; Hegre and Sambanis 2006). These studies, however, tend to model development as having an unconditional effect on the risk of civil war. The implication is that increases in measures of development, such as per capita income, literacy rates, or the rate of non-mineral exports, should markedly decrease the risk of civil war, irrespective of regime type. There are numerous exceptions to this relationship,

too. Among countries with GDP per capita higher than USD 2000, armed conflicts have occurred in Argentina (1973), Chile (1973), Croatia (1992), El Salvador (1972), Mexico (1994, 1996), Oman (1972), Panama (1989), Peru (1982), Russia (1990), Saudi Arabia (1979), South Africa (1966, 1981), Spain (1980, 1987), Trinidad (1970), Turkey (1984, 1991), the UK (1971–), and Venezuela (1965). We will argue that the impact of higher levels of development on a country’s propensity for civil war is contingent on regime type because democracies and autocracies differ in the extent to which they convert economic advancement into stable outcomes. Democracies enjoy greater marginal gains in internal stability from increasing wealth than autocracies. Whereas higher levels of development are expected to have a substantial impact on civil peace in democracies, the impact is likely to be weaker in autocracies.

2.4 Democratic conflict resolution in low-income countries

Democracies resolve conflicts by offering alternative institutional channels to voice discontent and influence policy-making, thereby reducing grievances. It is clear that the challenges democratic institutions are facing are large in low-income countries. Irrespective of regime type, poor and underdeveloped countries generally have a high level of grievances. A characteristic of poor and underdeveloped countries is that control of resources typically are concentrated on a few hands. Large segments of the population, often distinguished along ethnic lines, are likely to be deprived of resources and wealth to which they feel entitled. These are grievances due to inequality, or ‘relative deprivation’ (Gurr 1970). Under certain circumstances, potential and actual political actors may develop a strong sense that the private and/or public goods they expect to receive cannot be acquired and/or safeguarded in the existing distributive regime.

Democracy adds its particular hue to this baseline of conflict potential. Since democracy is expected to improve conditions for the majority of the population, poverty and underdevelopment gives rise to strong motivations for change that may drive internal political violence. Such motivations are likely to affect the political elites as well as the general population.

The motivations for change fuelling the 1971 insurgency by Janatha Vimukthi Peramuna (JVP) against the government of Sri Lanka is a case in point. Evidence on about 10,000 suspected insurgents detained by the Sri Lankan authorities following the insurgency suggests that the JVP mobilized around a very specific grievance—crushed aspirations and expectations under appalling rates of unemployment among educated youths (Kearney 1975, 741). The young JVP cadre were turned into violent political actors in large part by their strong sense that the private good of employment to which they felt entitled could not be acquired under the distributive regime of the Sri Lankan government (Kearney 1975; Moore 1993).

It is impossible to say whether the insurgency would have emerged if Sri Lanka had not been a democracy. However, it is likely that citizens of democratic regimes tend to feel entitled to more than citizens of non-democratic regimes. The difference between what citizens demand and what the government is able to deliver, even with the best of intentions, may be considerably larger in low-income democracies than in high-income systems. However, the governments of democratic countries may not always have the best of intentions. Government tend to resist accountability more vehemently the poorer the country is, since losing office has larger consequences in poor countries. Political positions in impoverished countries are often attended by material privileges. When positions are lost, these privileges disappear with them. Given that economic alternatives to political office in poor countries are few and grim, they provide considerable motivation to gain or retain office, by violent means if necessary.

In developed democracies, the threat of losing office provides a powerful incentive for ministers to pursue policies that minimize the risk of having to leave. If the benefits associated with positions are valuable, however, ministers and governments are likely to resist more vehemently the opposition's attempts to remove them. This is particularly true when the benefits themselves are the objects of discontent. Government positions in poor countries regularly give access to large-scale bribes, for instance. The often inequitable and always non-formalized distribution of benefits corruption implies is bound to raise demands for change. However, rather than give up these privileges, government officials are likely to silence the opposition without altering their policies. Co-opting the opposition by giving them access to similar benefits is often the preferred option. In other cases, governments find it necessary to stifle criticism by undermining the democratic institutions themselves. Several studies reveal that democratic institutions are particularly unstable under conditions of poverty (Przeworski et al. 2000; Boix and Stokes 2003; Epstein et al. 2006; Gates et al. 2006).⁹

Democratic institutions may therefore be less able to moderate the motivation for change in low-income countries than in economies offering better alternative income opportunities also for the elites. And, since the political system often tends to co-opt opposition elites, the segments of the opposition that do not have access to the formal

⁹These processes are reinforced by resource dependence. Lower levels of development are often marked by a particular economic structure, such as mineral export-dependence typified by the 'rentier state' (Ross 2001). Rentier states may generate grievances among the general population because resource revenues are inequitably concentrated on a few and government-controlled hands. Democracy should only exacerbate such grievances. Rentier states cannot satisfy the democratic expectation of participation in all major internal affairs because the diffusion of political power is not matched by an equitable distribution of resource power. Democracy in rentier states should also make it more difficult for governments to counteract grievances and their organization by paying off potential opposition. Rentier states typically use their resource revenues to reduce taxes in order to escape accountability, and spend on patronage in order to reduce pressures for change (Ross 2001, 332–333). Such measures should be less effective in democracies because participation has intrinsic value. The net outcome is that two necessary conditions for violent protest will remain: motivations for change and a low threshold of organization.

institutions may very well perceive the formal channels of influence not to be an alternative to the use of organized violence.

At the same time, the incentives for ‘conflict entrepreneurs’ to grab political power by force are present in poor democracies as much as in autocracies. Low- and middle-income democracies are prone to military coups, as witnessed in Thailand in 2006. Even when the coups themselves are relatively bloodless, they may trigger reactions in the form of large-scale insurgency such as happened in Cote d’Ivoire in 2000. Democracies that are unable to prevent coups or armed uprisings intended to overturn the political system are obviously not able to prevent armed conflicts. In this respect, poor democracies run the same risk as poor non-democracies. Democracies may even be more vulnerable to non-constitutional attempts to take over power since they offer greater opportunities for *organization* and *recruitment to violence* than poor autocracies. More specifically, democracies have less cost-efficient ways of resisting the organization of insurgencies than autocracies. The range of legitimate means of coercion available to poor democracies is less effective than those available to poor autocracies. As we will discuss in more detail below, poor democracies have a disadvantage in terms of coercive outcomes (Collier and Rohner 2008). Poor autocracies may resort to such inexpensive measures as arrest without trial, or induce the perception among opposition groups that there is a high probability of arrest or other forms of persecution. Democracies cannot legitimately use such methods. In effect, poor democracies have a lower capacity of effective coercion than poor autocracies, and therefore provide better conditions for the organization of and recruitment to insurgencies. In short, the pacifying effect of democracy is conditional on development to the extent that poor and underdeveloped democracies are more civil war-prone than autocracies at any level of development: poor democracies have a relatively high risk of civil war.

The fact that poor democracies are more easily overturned in turn affects the behavior of governments. For its central political players, a poor democratic polity lacking credibility in the present may conjure up images of future loss of political power, democratic breakdown, exclusion from the political process, and persecution by rival groups in power. Political elites may thereby have incentives to gain or hold on to power by undemocratic means, and – by the sole power of future expectations – cause democratic deterioration, instability, and perhaps civil war. Elements of regime instability and future expectations were present in the 1980s revival of JVP and its renewed turn to violence. Sri Lanka was perceived to take a decidedly non-democratic turn in a 1982 referendum when the incumbent government used widespread intimidation and perhaps electoral fraud to secure its long-term control of parliament (Moore, 1993: 619). Whereas government control had changed hands at each election during the past thirty years—thus maintaining expectations of eventual access to state patronage—the prospects now of long-term exclusion as a consequence of autocratization motivated many to rally behind JVP (Moore 1993, 617).

2.5 Autocratic conflict resolution in high-income countries

In contrast to low-development democracies, poor autocracies have a comparatively low risk of civil war. Coercive strategies to hinder organization and recruitment to violence are more cost-efficient in autocracies than in democracies. Moreover, autocracies typically resort to private incentives to ensure support from a minimum winning coalition, whereas democracies tend to be forced to rely on public goods. In weakly institutionalized environments, distribution of private goods in general cope better with commitment problems. Especially in situations where the government is able to control a large share of the wealth generated in the economy, such strategies are likely to be successful. Oil economies are good examples. Such ‘rentier states’ typically use their resource revenues to reduce taxes in order to escape accountability, and spend on patronage in order to reduce pressures for change (Ross 2001, 332–333). In fact, in low-income countries, the strategies of rentier states may be more effective to limit motivations for change than the public-goods strategies of democracies. Pressure for change may be successfully bought off by reducing or removing taxes, or by spending profusely on patronage (Ross 2001, 332–333). Private gain may be a sufficient substitute for political participation in countries with little or no democratic experience. Motivation in the form of democratizing pressure may also be limited in rentier states if resource-driven wealth is not accompanied by rising education levels and occupational specialization (Ross 2001, 336). Modernization theorists consider the social and cultural changes associated with education and diversifying economies to be requisites for democratizing pressures (Deutsch 1961; Inglehart 1997; Lipset 1959). When such social and cultural changes are absent, autocratic rentier states may avoid another set of grievances.

Autocratic states also have more cost-efficient ways in which to counteract the organization of opposition and recruitment to violence. Even poor autocracies can therefore be relatively stable. Consider the impact of wealth. Fearon and Laitin (2003) argue that wealthy states generally provide fewer opportunities for rebellion, for with wealth comes the financial, administrative, policing and military to deter potential insurgents. But it is not wealth as such that decreases the opportunities for rebellion, but the extent to which money translates into coercive capacity. Wealth is not equal to governmental capacity. As Tilly (2003, 41) puts it, governmental capacity ‘means the extent to which governmental agents control resources, activities, and populations within the government’s territory.’ The central factor, in other words, is coercive outcomes, not financial input. The efficiency by which money is converted into coercive outcomes is greater for autocracies than for democracies. Governmental control is more cost-efficient in autocracies. They can therefore have relatively effective coercive outcomes, even at low levels of wealth. This is possible because autocracies have other legitimate means of coercion at their disposal than democracies.

Any regime type is associated with a particular range of legitimate means of coercion. We define legitimacy as *whatever a regime's minimum winning coalition accepts* as legitimate. We adopt Bueno de Mesquita et al's understanding of a minimum winning coalition as the 'people whose support is required to keep the incumbent in office'. It follows that the winning coalition in democracies is large, typically a majority of the selectorate, whereas the winning coalition in monarchies, military juntas, and authoritarian states always is small (Bueno de Mesquita et al. 1999, 793). Because minimum winning coalitions in different regimes are of such different size and composed of such different groups, what passes as legitimate means of coercion in autocracies is quite different from what is accepted in democracies. A military junta propped up by a small aristocracy and a military elite may acquiesce to imprisonment without trial, torture, disappearances, assassinations, and other cost-efficient ways of terrorising potential opponents into compliance. Such methods fall outside the range of legitimate means of coercion in democracies, whose legitimate methods of coercion require more resources. In effect, poor autocracies may have quite effective coercive outcomes, while democracies require more wealth. As a consequence, poor autocracies have a comparatively low risk of civil war.

As economies grow and become more diversified, however, the autocratic strategies become less effective. As the genuinely private sector grows in importance relative to the state-controlled sector, the amount of funds available for state-sponsored patronage becomes relatively less important, and citizens without access to government gain more economic leverage. Typically, economic development increases the pressure for political liberalization. This pressure may find expression as armed insurgency. And even where the motivations of potential armed groups are more limited than bringing about revolution or democratization, autocratic systems may prove less effective than democratic ones in middle-income countries.

2.6 Turning the tables: developing democracies and autocracies

We have argued that democracies and autocracies tend to choose different strategies to reduce the conditions that lead to civil war: motivation for change, organization, the turn to violence, and the recruitment to violence. Economic development also affect the propensity for civil war. However, economic development affects democracies and autocracies in different ways and to different degrees. Common models of civil war suggesting that development pacifies in a substantial manner, be it in a democracy or an autocracy, are misleading. Whereas democracies enjoy a great reduction in the risk of civil war with increases in wealth, developing autocracies will experience less of a pacifying effect. This has primarily two explanations. First, economic growth and development in democracies generate relatively large marginal gains in stability through mechanisms discussed below. Second, as autocracies develop, any attendant increase in state capacity will be

counteracted by pressures for democratic change that may have destabilizing effects.

High-development democracies have particular advantages in that they moderate motivations for change, limit the strategic utility of a turn to violence, and counteract the recruitment to violence. As we have seen, poor or low-development democracies give rise to particular motivations for change and opportunities to organise and recruit to rebellion. In effect, low-development democracies are more civil war-prone than autocracies at any level of development. The starting point for income growth and development in democracies, then, is a situation with a relatively high risk of civil war. Given a high risk of civil war in poor democracies, economic growth and development generate greater marginal gains in terms of stability than in poor autocracies. One aspect of this is that the particular motivations for change associated with poor democracies disappear. Political elites, knowing that important conditions for stability are present in wealthy democracies, will gain greater confidence in the future prospects for the democratic process. The general public will become more satisfied with the existing distributive regime because it has more to distribute. The large winning coalitions that sustain democratic governments (Bueno de Mesquita et al. 2003) will ensure that rising national wealth benefits the general public through the provision of public goods. Given their large winning coalitions, democracies are particularly adept at translating development into public goods provision.

In contrast, autocratic governments are sustained by small winning coalitions and therefore have incentive only to distribute wealth in the form of patronage (private goods). Such privileging of a small circle of supporters gives rise to popular motivations for change. Look for instance to the rising support for the Kurdish Democratic Party of Iran (KDPI) and its violent resistance against government forces, 1979–1996. Nominally a secessionist movement, KDPI owed its dominant position in the Kurdish region of Iran in part to rising social and economic inequality during the 1960s and 1970s (Minority Rights Group 1997, 340). Whereas Iran experienced considerable economic growth during the 1960s and 1970s, not least as a consequence of exponentially rising oil revenues, evidence suggests that the social and economic inferiority of the peripheral Kurds to the central Persians persisted or deepened. The concentration of power in a Pahlavi regime accountable to few contributed to limiting the dispersal of the gains from industry and oil to the central Persian population (Aghajanian 1983, 221). The relative deprivation of the Kurdish population provided sufficient motivation for change for people to rally behind the guerrilla fighters of the KDPI, given that its stated objectives not only included self-determination, but also the attainment of social and economic justice (Bruinessen 1986, 17).

Beyond limiting the utility of violence, a rise in wealth under conditions of democracy also leads to greater marginal gains in terms of counteracting opportunities to recruit to violence. Wealthy democracies can employ the less cost-efficient means of coercion that are legitimate in democratic polities. Such means of coercion include an advanced, effec-

tive, and well-funded judicial system, as well as a highly trained and well-equipped police force. Democracies may thus have effective coercive outcomes, but they come at a price.

In sum, democracies tend to become more stable institutions as they develop. Autocracies, on the other hand, experience that any increase in state capacity following economic development is counteracted by pressure for democratic change. Faced with such pressure, autocratic leaders have two options: democratize or defend their regime by force. In our dichotomous schema, high-development autocracies are somewhat anomalous. Most developing autocracies will lose their institutional distinctiveness by the process of democratization. Those high-development autocracies that remain autocratic will become vulnerable to violent challenges.

Empirical studies unambiguously show that economic development stabilizes democracies (Lipset 1959; Przeworski et al. 2000; Gates et al. 2006). Development does not have the same impact on autocracies. Autocratic institutions are more likely to change toward democracy with higher levels of average income (Epstein et al. 2006, 563). Economic development thus serves as an exogenous force that threatens the institutions that autocracies operate within. Developing autocracies will be less able to credibly commit to their coercive regime. The uncertainty may open opportunities for organization and recruitment to violence. Civil war is more likely.

The pressure for change economic development creates in autocratic regimes is likely to undermine their coercive strategies not only because the governments are threatened. We have argued that physical force becomes a less attractive option for potential conquerors and rebels as the economy becomes more dependent on mobile capital and as education levels increase. This shift obviously also affect the government itself. Several theoretical explanations of the relationship between democracy and development highlight this (Dahl 1971; Vanhanen 1997). Dahl (1989, 245ff.) notes two necessary conditions for democratic government. That the state's instruments for violent coercion are under civilian control, and that the civilians in charge are subject to the democratic process. But which factors must be present if the military is to accept civilian control and not topple the civilian leadership in a coup? Dahl argues this only happens in what he terms a 'modern dynamic pluralist society', characterized by 'a dispersion of *political resources*, such as money, knowledge, status, and access to organizations; of *strategic locations*, particularly in economic, scientific, educational, and cultural affairs; and of *bargaining positions*, both overt and latent, in economic affairs, science, communications, education, and elsewhere' (Dahl 1989, 252). Such dispersion of resources and positions are closely associated with high average income. With the exception of oil-rich states, high-income non-democracies such as Spain and Portugal in the 1970s are close to being anomalous. The strong pressure for democratization in such societies may itself be a cause for organized violent conflict.

Acemoglu and Robinson (2000, 2001) and Boix (2003) note another link between the appropriability of assets and the likelihood of democratization: In countries where

the rich has all its wealth in land-based assets such as agricultural land or oil fields, they will resist democratization out of fear of radical redistribution. Where the rich elites have their wealth in mobile assets such as financial capital, they may allow democracy because they can avoid redistribution by moving their capital out of the country. In developing countries, in short, revolutions will not happen because the poor cannot expect to gain much from them.

2.7 The Interactive Effect Of Democracy and Development

The argument above implies that the effect of democracy should be contingent on the level of development and, vice versa, that the effect of development is contingent on level of democracy. In a statistical model, a multiplicative interaction term should be statistically significant. Both democracies and autocracies are expected to gain stability with increasing wealth, but democracies are expected to do so at a greater rate. Conversely, the probability of civil war is affected by regime type, but the difference between autocracies and democracies decreases with greater levels of development. In the remainder of the paper, we investigate whether the relationship indicated in Table 1 holds in a fully specified model.

3 Research Design

The interaction hypothesis is tested using a calendar-time Cox regression model as suggested by Raknerud and Hegre (1997) and applied to civil war in Hegre et al. (2001).¹⁰ The analysis in that article is extended along several lines, in addition to adding the development-democracy interactions. The dependent variable is based on the UCDP/PRIO dataset, recently extended back to 1946 (Gleditsch et al. 2002; ?). The analysis addresses an democracy-conflict endogeneity problem inherent in the Polity democracy index, and uses an alternative indicator of democracy.

The probability of the outbreak of an armed conflict is likely to be dependent on how long time has passed since there was an armed conflict in the same country. In particular, spells of peace are likely to have a positive duration dependence.¹¹ To handle this, we enter a decay function of the time passed since a previous conflict started into

¹⁰The Cox regression model assumes that the effect of any covariate has a proportional and constant effect that is invariant to time (Box-Steffensmeier and Zorn 2001) – the baseline hazard of civil war is allowed to vary freely over time, but any difference between the baseline hazards of individual countries is due to the covariates only. We test whether this proportional hazard assumption is violated in all models presented below, and find it always to hold. In the calendar-time Cox regression model, this means that the effect of variables is constant over calendar time – there is nothing to support the view that the democracy variables have changed their impact on the likelihood of armed conflict from 1965 to 2004. The tests reported here imply that this assumption is tenable.

¹¹See Raknerud and Hegre (1997) and Beck, Katz and Tucker (1998) for discussions of such temporal dependence in empirical studies of war outbreak.

the model. The value of the decay function is decreasing at a constant rate. The hazard of armed conflict outbreak is very high just after one has ended, but diminish toward zero with time. The general form of the decay function is $2^{\frac{T}{\alpha}}$ where T is the time since the period started, and α is the half-life parameter – the time after which the value of the decay function is reduced to one half. This function is also used for a ‘time since regime change’ variable, described below. We ran some of the models presented below for several values for the half-life parameters α , and chose those that maximized the log likelihood of the model. We will refer to the decay function variables as ‘proximity of’ or ‘brevity of’ variables below.

The UCDP/PRIO (Gleditsch et al. 2002) dataset records all armed conflicts with at least 25 battle deaths per year. This threshold is in one respect lower than the threshold most often used in comparable studies – 1,000 battle deaths over the course of the conflict. If anything, this low threshold is likely to bias the results against the main argument of the paper, since the conflicts registered in developed democracies tend to be relatively minor.

3.1 Core Variables

Income The Income or GDP per capita variable was taken from World Bank (2006) for the 1965–2004 period. The variable is measured as the base-2 logarithm of income in constant 1995 US dollars.

Regime type Most earlier studies have used the *Polity* democracy index (Jagers and Gurr 1995) and included the square term of the index to model the inverted-U relationship. However, the Polity index is problematic to use in studies of civil war and political violence, since the Polity project codes polities with factionalism and violence as imperfect democracies: To achieve the maximum democracy score, the Polity sub-indicators ‘Regulation of participation’ and ‘competitiveness of participation’ must be coded as ‘regulated’ and ‘competitive’, respectively (Jagers and Gurr 1995). However, ‘regulation’ is coded as ‘factional’ if ‘there are ... political groups which compete for political influence ... but competition among them is intense, hostile, and frequently violent’ (Gurr and Moore 1997, 12). Such polities are also likely to be coded as having ‘Factional competition’. Hence, countries with wide-spread political violence are likely to be coded as not-perfect democracies by definition. This can potentially explain why some studies find an inverted-U shaped relationship between level of democracy and civil war.

To solve this problem, we replace the participation component in the Polity index with the modified version of Vanhanen (2000)’s *Polyarchy* measure introduced by Gates et al. (2006). The index combines data on ‘Participation’ – the share of the population actually voting in elections, and ‘Competition’ – the share of the votes for parties other

than the largest party. The two indicators are combined in a way to ensure that political systems with high participation but no competition (only one party) are not coded as democratic.¹² The measure is log-transformed to model that the marginal impact of one percent higher participation on level of democracy is diminishing.

The combined Polity-Polyarchy regime type indicator developed in Gates et al. (2006) is called SIP (Scalar Index of Polities). It combines the Polity Executive constraints and Regulation of Executive sub-indicators with the (modified) Polyarchy index to generate a continuous index of democracy. The three dimensions are weighted equally and the measured is normalized to range from 0 (least democratic) to 1 (most democratic). In all models, we used information the political system at a date six months before the date of observation to reduce endogeneity problems.

In Figure 1 we plot democracy score against GDP per capita for each of the four decades in our dataset to show how the two core variables are related and how they change over time. Countries with conflict onset are marked with x in the plots, countries without conflict as diamonds.

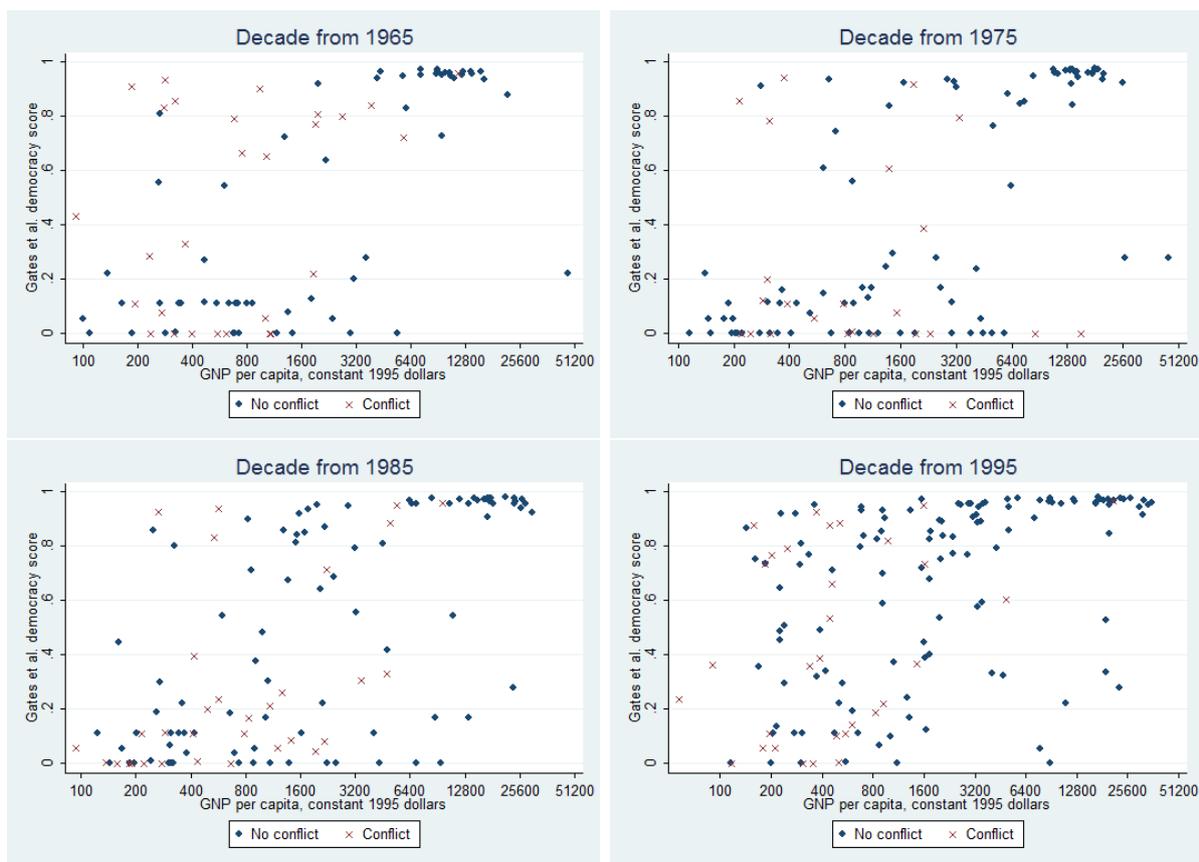
The correlation between our democracy and development variables is around 0.5. Several developments over time are notable: A large number of countries have transitioned from autocracy to semi-democracy over the four decades. Moreover, average GDP per capita has increased. This growth is discernible among all regime types. In the first couple of decades, a majority of the poor democracies had conflicts, and there were very few rich non-democracies. In the two last decades, the number of poor democracies have increased, but a larger proportion of them have avoided conflict. In addition, the number of rich non-democracies increased.

Interaction terms We created interaction terms between GDP per capita and the regime type variable. To minimize collinearity, all variables entering interaction terms were centered around their means by subtracting the mean for each variable from each observation.¹³

¹²Vanhanen combines these two variables by multiplying them. Following Gates et al. (2006), we use a modified version of the index. Gates et al. show that the measure is somewhat biased in favor of political systems with extremely fragmented party systems. According to the measure, countries where the largest party only gets 25% of the votes is considered *twice* as democratic as a country where the largest party received 63% of the votes. This is not necessarily true. To reduce this bias, Participation is multiplied by $(\text{Competition}/30\%)$ if Competition is less than 30%. With this modification, only political systems where the largest party receives more than 70% of the votes are penalized in the index for having low competition. Otherwise, the index uses the Participation component only.

¹³More precisely, 0.5 was subtracted from the SIP variable, and 11.644 (corresponding to 3200 USD) from the $\ln(\text{GDP per capita})$ variable.

Figure 1: Democracy, development, and conflict; Four decades



3.2 Control Variables

Growth Growth is operationalized as the difference between $\ln(\text{GDP per capita})$ in the year before the observation and $\ln(\text{GDP per capita})$ two years before the observation. Data sources are the same as for GDP per capita.

Proximity of Regime Change For each observation, we computed the time in days since the last regime change, operationalized as a change of at least 0.03 at the SIP index, or since the country became independent. The time was transformed into the ‘Proximity of’ function by means of the decay function $prc = 2^{-\frac{T_{rc}}{\alpha}}$ where T_{rc} is the number of years since the last regime change in the country, and the half-life α is 0.25 years.

Population Population is one of the most robust predictors of armed conflict (Hegre and Sambanis 2006; Raleigh and Hegre 2009). In small countries, a conflict with a given low intensity (measured as number of persons killed per capita) is not likely to reach the 25 battle deaths criterion. In a large country, a conflict with the same intensity has a greater chance of exceeding the threshold. Another way to put this is to think of people’s motivations for inciting or contributing to an armed conflict are uniformly distributed among individuals. Only individuals with a motivation over a certain fractile of this

distribution are likely to join a rebel group. With a uniform distribution, rebel groups of the required size is more likely to form the higher the number of individuals to recruit from. A similar argument might be made for the government’s incentives to use force against any citizen.

Population data were taken from World Bank (2006). The variable was $\log(2)$ -transformed to reduce the impact of very large countries.

Proximity of Armed Conflict For each observation, we computed the time in days since the last armed conflict in the country started. The time was transformed into the ‘Proximity function’ by means of the formula $p_{ac} = 2^{(-\frac{T_{ac}}{2})}$ where T_{ac} is the number of years since the last conflict and the half-life is 2 years. If the country has had no armed conflict since 1946, the variable is coded as zero.

4 Results

Table 2 reports the results from estimating a set of calendar-time Cox regression models of the hazard of armed conflict as a function of democracy, development, and the control variables. A robust estimator of variance was used to produce estimates for standard errors.

Model 1-1 replicates a model close to Hegre et al. (2001). As in that study and several others, the main term for democracy is not significant – democracies have as frequent conflicts as non-democracies. The GDP per capita term is negative and significant as in most other studies. The democracy square term is negative but is not statistically significant. This change in results relative to as in Hegre et al. (2001) is because of the problem with factionalism in the Polity index.¹⁴ Figure 2 shows the estimated relationship between democracy, development, and the risk of conflict in model 1-1. The lines in the left part of the figure shows the estimated risk of conflict as a function of democracy score for three levels of GDP per capita – solid line (200 USD), dashed line (1,600 USD, and dotted line (12,800 USD). In the right part, the estimated risk is shown as a function of GDP per capita for autocracies (SIP democracy score of 0 – solid line), semi-democracies (0.5 – dashed line), and democracies (0.92 – dotted line).¹⁵ The pair of plots shows clearly that average income explains risk of conflict better than regime type in the non-interactive model. A country with GDP per capita of USD 200 has an estimated risk of conflict onset almost four times higher than one with average income of USD 12,800. A semi-democracy has an estimated risk about 20% higher than that of a democracy.

¹⁴See the discussion above, as well as Strand (2007), Gleditsch, Hegre and Strand (2009), and Vreeland (2008).

¹⁵All risks are expressed relative to a baseline – a country with GDP per capita of USD 3200 and SIP score of 0.5.

Table 2: Risk of Armed Conflict, Income as Indicator of development, observations with data for all variables, 1967–2004. Cox regression coefficients. Robust standard errors in parentheses.

	1-1	1-2	1-3
Centered democracy score	-0.0700 (-0.20)	-0.737 (-1.60)	-0.913* (-2.27)
Democracy squared	-0.441 (-0.39)	-0.172 (-0.10)	
Centered log(2) GDP per capita	-0.222*** (-3.69)	-0.176 (-0.94)	-0.209*** (-3.97)
Squared log(2) GDP per capita		-0.00289 (-0.05)	
Interaction Democracy–GDP per capita		-0.105 (-0.38)	-0.391** (-3.06)
Interaction Democracy sq.–GDP per capita		-1.022 (-0.86)	
Interaction Democracy – GDP per capita sq.		0.0697 (1.00)	
Interaction Democracy sq. – GDP per capita sq.		-0.182 (-0.52)	
Log(2) population	0.228*** (4.17)	0.221*** (4.60)	0.224*** (4.74)
Growth lagged	-0.0146 (-1.19)	-0.0185 (-1.56)	-0.0168 (-1.42)
Brevity of peace (d=2)	1.004*** (3.45)	0.863** (2.92)	0.894** (3.20)
Proximity of regime change(d=2)	0.542* (2.24)	0.531* (2.32)	0.523* (2.34)
Observations	25490	25490	25490
ll	-698.4	-691.5	-693.2

t statistics in parentheses

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Figure 2: Estimated risk of armed conflict as function of GDP per capita and democracy level, model 1-1

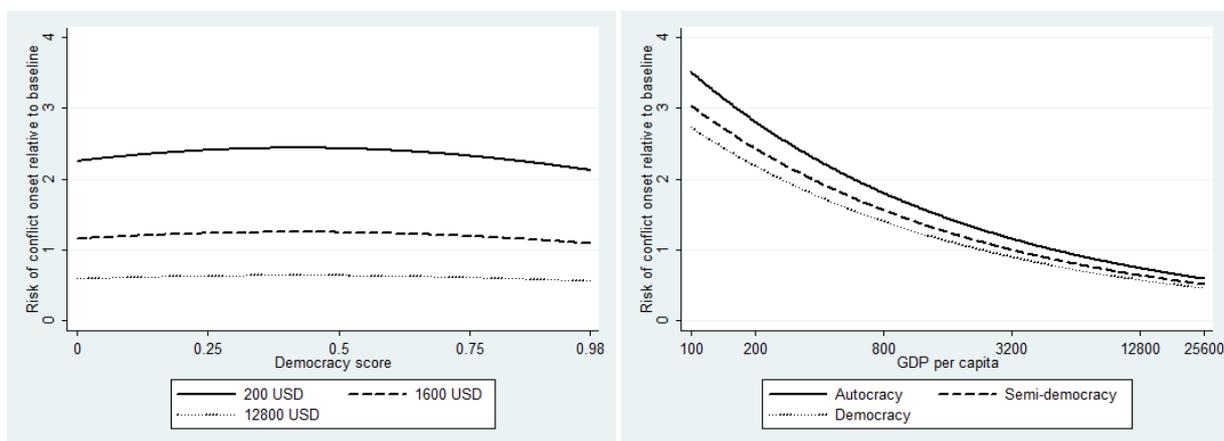
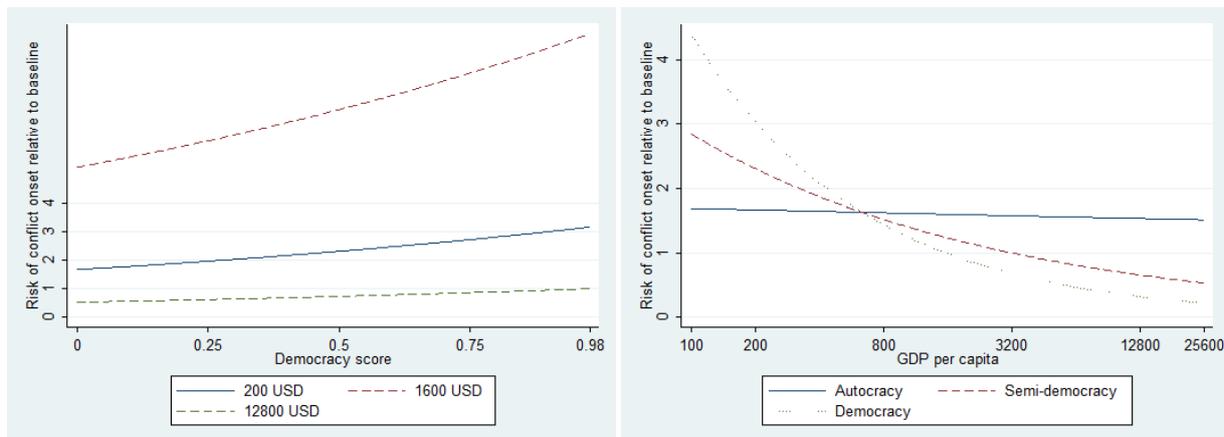


Figure 3: Estimated risk of armed conflict (relative to baseline) as function of GDP per capita and democracy level, model 1-3

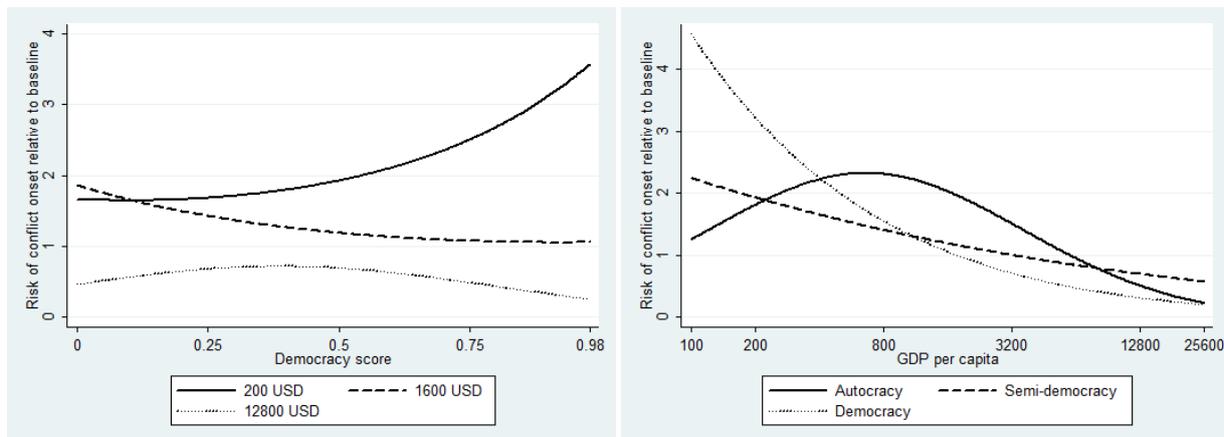


In Model 1-2, we added the square of GDP per capita (centered) and the four possible multiplicative interaction terms between the two democracy terms and the two GDP per capita terms. None of these interaction terms are individually significant, but the pseudo-log likelihood has increased by 6.9 relative to model 1-1. In Model 1-3 we removed the square terms and retained only the interaction term between the non-squared terms. The pseudo-log likelihood of this model is only 1.8 points lower than that of Model 1-2. In model 1-3, the interaction term is significant at the 0.01 level. Model 1-3 clearly fits data better than Model 1-2, but is simpler and Model 1-2. We consequently concentrate our attention on this model.

In an interaction model such as model 1-3, the main term estimates should be interpreted as the effect of the term when the other variable is zero (Friedrich 1982). Since all variables entering the interaction terms in this model are centered around their means, the interpretations of the main terms are the effect of each variable when the other is at the mean. The significant and negative estimate for the democracy term means that for the baseline-income country (with GDP per capita at 3200 US dollars), an increase in the democracy index significantly reduces the risk of armed conflict. The magnitude of the estimate, $\hat{\beta} = -0.91$ means increasing the democracy level from the baseline level of 0.5 to full democracy (0.90) reduces the risk to $\exp(-0.91 \cdot 0.40) = 0.69$ or by 31%. This is a change comparable to the difference between Malaysia and Brazil. The significant and negative estimate for the GDP per capita term means that increasing income reduces the risk of conflict in a country with the baseline value for the democracy index (0.5). The magnitude of the estimate implies that doubling the average income (as e.g. the change in Malaysia from 1991 to 2004) decreases the risk of conflict by 19%.

Figure 3 shows the corresponding estimated risks based on the reduced interaction model (model 1-3). The interaction term reflects a very different relationship between the three variables. In the left panel, the solid line shows that the risk of conflict *increases*

Figure 4: Estimated risk of armed conflict (relative to baseline) as function of GDP per capita and democracy level, model 1-2



with democracy for low-income countries, just as noted by Collier and Rohner (2008). For middle-income countries (dashed line), the risk of conflict is independent of regime type, whereas the risk is reduced sharply for upper-middle and high-income countries (dotted line). These effects are not extrapolated outside the range of data – Figure 1 demonstrates that a handful of low-income countries have been democratic, and some high-income countries non-democratic.

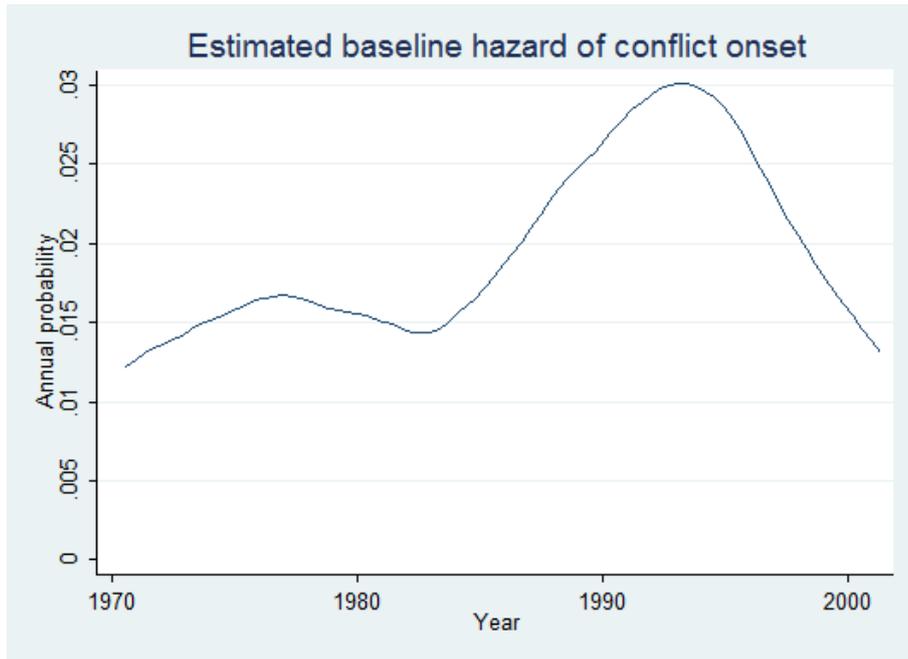
The right panel of Figure 3 shows that the estimate for interaction term should qualify our understanding of the effects of development just as much as that of democracy. For democracies (dotted line), increasing average income sharply reduces the risk of conflict. The same applies to semi-democracies, although to a lesser degree. For non-democracies, however, increasing income is not estimated to have any effect.

To what extent are the results of Model 1-3 due to restricting the relationships between democracy, development, and conflict to only linear functions and their interaction term? Model 1-2 is less restrictive, including square terms for both democracy, development, and all the interaction terms between each of these four main terms. Figure 4 shows the corresponding estimated relative risks for the results from this model.

The left part of the figure shows a picture quite similar to the left part of Figure 3, although there is a tendency that low-income semi-democracies are less conflict-prone than low-income full democracies. The right part of Figure 4 indicates that middle-income autocracies are the countries with the highest risk of conflict onset. High-income autocracies such as Saudi Arabia, Kuwait, and other Gulf states have sufficient income to be able to prevent violent opposition even without representative institutions.

A feature of the calendar-time Cox regression model is that it allows the baseline probability of conflict onset to vary over time (in the same fashion as in a fixed-effects model with time effects). Figure 5 shows how the estimated baseline hazard of internal conflict onset varies over the time period of the study. The baseline hazard is the annual

Figure 5: Estimated baseline risk of armed conflict, 1970–2004



probability at time t of conflict onset for a country with values zero for all independent variables. The baseline hazard was roughly unchanged from 1970 to the mid-1980s, then increased quickly as the Cold war ended, peaking at double the Cold-war risk in 1993. After 1993, the baseline hazard has been reduced to the level of the 1970s.

Allowing the baseline hazard to vary over time is important when studying variables that are trended as the democracy and development variables clearly are. If important, system-wide variables are trended in the same direction as our variables of interest, we risk attributing the effect of system variables to democracy or development. If for instance the expansion of UN peace-keeping operations seen after 1990 have decreased the risk of conflict onset, we risk attributing this effect to development or to democracy since both of these variables have also increased on average over the past two decades.

The results in Table 2 is estimated using only 65% of the countries for which we have conflict data. For the remaining 35% we miss information on either democracy or average income. A solution to this missing-data problem is the procedure referred to as 'modified zero-order regression' (Greene 2003, 429–431), where missing values are replaced with zeros and a dummy variable indicating for which observation this replacement was done. We did such replacements for the democracy, development, and population size variables. The results of estimating the three models in Table 2 with the revised data set are presented in Table 3. These estimations yield the same conclusions: only the interaction term between the non-squared terms is significant. All three estimates in the most parsimonious model – Model 2-3 – are negative and significant.

The estimates for the control variables in Tables 2 and 3 are consistent with other

Table 3: Risk of Armed Conflict, Income as Indicator of development, All observations, missing data replaced with zero and denoted with missing data indicators, 1967–2004. Cox regression coefficients. Robust standard errors in parentheses

	1-1	1-2	1-3
csip_m	-0.479 (-1.46)	-0.944* (-2.32)	-1.401*** (-3.74)
csipsq_m	0.550 (0.51)	-0.607 (-0.35)	
clngdpc_m	-0.144** (-2.81)	-0.135 (-1.19)	-0.160** (-3.29)
sipgdp_m		-0.414** (-2.92)	-0.492*** (-3.90)
sipsqgdp_m		-0.436 (-0.70)	
clnpop_m	0.247*** (5.04)	0.230*** (4.70)	0.240*** (5.82)
lgrowth_m	-0.0148 (-1.24)	-0.0171 (-1.45)	-0.0159 (-1.41)
cmsip	-0.106 (-0.15)		-0.104 (-0.15)
cmgdp	0.510* (2.04)	-1.415 (-1.46)	0.175 (0.77)
cmpop	-0.224 (-0.43)		-0.248 (-0.49)
Brevity of peace (d=2)	1.338*** (5.28)	0.923** (3.17)	1.188*** (4.69)
Proximity of regime change(d=2)	0.449* (2.19)	0.561* (2.49)	0.464* (2.30)
Observations	31314	25971	31314
ll	-947.7	-704.9	-938.0

t statistics in parentheses

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

studies. Growth is negatively related to the probability of armed conflict onset. A country with 5% per capita growth is estimated to have approximately 11% lower risk of conflict than one with zero per-capita growth. The estimate for $\ln(\text{Population})$ is positive and significant: Large countries have more conflicts than small countries. The estimates for these two variables vary only little in the different models. The ‘proximity of regime change’ is also related to conflict, as found in Hegre et al. (2001) and Fearon and Laitin (2003). As expected, the ‘brevity of peace’ variable is positive and strongly significant: Armed conflicts are more likely just after another conflict has started.

5 Conclusion

Our analysis supports the claim that the relationships between democracy and the risk of conflict and development and conflict are contingent on each other, as also found by Hegre (2003) and Collier and Rohner (2008): Increasing the level of economic development reduces the risk of armed conflict only for democratic countries, and increasing the level of democracy only for developed countries. The contingent effect was modeled by means of multiplicative interaction terms. The model was also estimated on two different versions of the dependent variable: Armed conflicts from the UCDP/PRIO dataset including all conflicts with at least 25 dead per year. The results are very robust.

There are several important implications of this finding. Collier and Rohner (2008) limit their focus to how democracy reduces the incentives for rebellion only in combination with relatively high income levels, and attribute this to the ‘the inability of democratic governments to use techniques of repression that autocracies find effective’ (p. 538). We have in this paper noted a set of other reasons why low-income democracies may find it difficult to prevent armed conflicts: Where the socio-economic conditions pointed out by Lipset and others favoring democratic stability are partly absent, democratic countries may be under strong pressure to revert to autocratic systems, democratic governments may be faced with larger expectations for improvements in livelihoods than they can deliver, and there are stronger incentives to undermine the democratic system from within in countries where political office is very attractive relative to other sources of personal income. Low-income democracies are also more frequently ‘inconsistent’ or ‘anocratic’ than high-income democracies.

However, the interaction term also implies that development reduces the risk of conflict only in combination with democracy. To phrase it in the language of Collier and Rohner (2008), the techniques of repression that are effective in low-income autocracies are less effective when income rises. This implies a qualification of explanations of the relationship between low levels of economic development and civil war as due to low opportunity costs for potential rebel recruits, and to governments with low capacity for countering insurgencies (Collier and Hoeffler 2004; Fearon and Laitin 2003). The results

presented here calls for a qualification of these explanations: If development decreases the probability of civil war only for democratic countries, this must mean either that the risk-reducing effect of increased income in autocracies is countered by a risk-increasing effect, or that the effects of increasing opportunity costs and state capacity due to economic development is much stronger in democracies than in autocracies. One possible explanation for the first builds on the fact that high average income levels are associated with extensive reliance on human and financial capital that citizens can partly withdraw from rulers if repression becomes too extensive, such that autocratic regimes are forced to restrain their behavior.¹⁶ What determines counter-insurgency efficiency may not be the absolute amount of wealth at the disposal of rulers, but the share of wealth they and their winning coalition control. Similarly, in high-income countries with a wide dispersion of economic power, it may be untenably expensive to maintain power through state-sponsored patronage. Moreover, there is often an increased pressure for democratization when autocracies become more developed, a pressure that may or may not turn violent (Huntington 1968; Boix and Garicano 2005).

A possible explanation for the latter is that maintaining order in democracies requires much more resources than in autocracies, requiring well-functioning legal systems and efficient, non-partisan and non-corrupt law enforcement. Moreover, the literature on the determinants of democracy and democratic stability shows clearly that democracy is unstable in low-income countries. Democratic institutions that are perceived to be unstable are not likely to be efficient in maintaining domestic peace, and the breakdown of any political institutions are often accompanied by violence. Of course, many of the same factors that explain the stability of democracy also explain the absence of civil war: The parallel to low opportunity costs for rebel recruits is that the value of having political offices is relatively larger. This increases the stakes of the political struggle, which again decreases the chances of stable democracy (Przeworski 1991). Likewise, the availability of large rents from the extraction of natural resources both increase the incentives of fighting over the control for them and reduces the incentives for institutionalizing a system where power and hence also revenues are distributed widely.

¹⁶An important exception is high income due to the extraction of rent-generating resources such as oil.

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