The Violence Trap:
A Political-Economic Approach
To the Problems of Development

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Abstract

Why do developing countries fail to adopt the institutions and policies that promote development? Our answer is the *violence trap*. Key political reforms—opening access and reducing rents—are typically feasible only when the domestic economy reaches a given level of complexity (for reasons we specify); yet complex economies typically can emerge only when key political reforms are already in place (for standard reasons). The interdependence of political reform and economic complexity entails violence because, as we show, unreformed polities lack adaptive efficiency. The literature sparked by Lipset's modernization thesis has operationalized "economic development" as a higher GDP per capita. Building on Steuart, we view development as creating a more complex economy whose workings will be more seriously disrupted by political violence. Empirically, we show that economic complexity (as measured by the Hidalgo-Hausmann index) strongly deters coups, even controlling for GDP per capita and level of democracy.

1. Introduction

To explain the problems of development – with a billion people mired in poverty and governments resistant to economic reform – economists and political scientists have proposed a wide range of development or poverty traps, self-reinforcing mechanisms that prevent developing countries from embarking on the path of steady development. Economists —though not exclusively— tend to focus on the problems posed by increasing returns to scale.[1] In these

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[1] Azariadis and Stachurski (2005) provide a survey of economic poverty traps that hinge on increasing returns. Pierson (2000) considers the role of increasing returns phenomena in sustaining suboptimal political equilibria but does not stress the consequences for economic performance.

accounts, impoverished nations are trapped in poverty because they cannot organize sufficiently large investments in, for example, education (Kremer 2003) or access to credit (Sachs 2005).

Various political poverty traps have also been proposed. Here, the culprit is the state's inability or unwillingness to reform itself and adopt good economic policies. Explanations for the lack of reform include incumbents' inability to ensure they will remain in power long enough to benefit from infrastructural reforms (Besley and Persson 2011); incumbents' resistance to liberalizing reforms that threaten their hold on power (North 1981, ch 3; Acemoglu and Robinson 2006b); and the superior organization of beneficiaries of the status quo vis-à-vis losers (Fernandez and Rodrik 1991; Ekelund and Tollison 1997; Grossman and Helpman 2001; Bueno de Mesquita et al. 2003).

In this paper, rather than focusing on the incumbent regime's incentive and ability to protect the status quo, we focus on the problem of violence (cf. Collier 2007; North, Wallis and Weingast 2009). As we show below, violent contests over political power have been surprisingly common throughout the developing world, including the richest developing countries. This observation raises the question of resistance to political reform in a more precise form: Why do developing countries not adopt the institutional solution(s) to the problem of political violence that developed states have adopted?

Our answer, in a nutshell, is the violence trap: developing countries face an increasing returns problem in the control of violence. Sufficiently large investments in raising the economic costs of violent domestic conflict for domestic elites can allow a transformation of the state toward what North, Wallis and Weingast (henceforth, NWW) call an "open access order" with a developed economy. Yet, the main way to raise the economic cost of domestic fighting is to

promote specialization and integration of economic activity across major political cleavages.

Domestic actors will be able and willing to make such investments only if political

reforms—such as those allowing anyone to form a business firm and those protecting property

from state predation—are already in place.   Thus, complex specialized economies cannot be

established without reformed states and reformed states cannot be created without complex

specialized economies.[2]

To elaborate our argument, the paper proceeds as follows. Section 2 shows the surprising

frequency of violence in most developing countries; violent seizures of power have occurred

within the lifetime of most people in these states. Section 3 views political violence as a species

of bargaining failure and explains how developing countries have sought to mitigate the problem

of violence, while section 4 explores why they so often fail to deter political violence in the

aftermath of shocks. Section 5 explores how investment decisions and politics interact and states

a testable prediction about the determinants of political violence.   Section 6 shows that

economic complexity (as measured by the Hidalgo-Hausmann index) deters coups, controlling

for GDP per capita, level of democracy, and past coups.   Section 7 shows that stable

democracies economically outperform stable autocracies, thereby regenerating the economic

complexity that sustains non-violent leadership transitions.   Section 8 concludes.

2. Endemic violence in developing countries, 1840-2005

Many scholars and practitioners of development associate the problem of violence mainly

with failed states, such as Somalia or the Congo. Unfortunately, violence is endemic to all

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[2] Our argument bears some resemblance to those emphasizing trade (Angell 1913 [1911], Weede 1996) or capital openness (Gartzke 2007) as a deterrent to international war. However, we focus on domestic politics and connect the nature of economic activity explicitly to the conditions for peace in a rationalist model of war (Fearon 1995).

developing countries.   To document this point, we consider data on regime duration in countries since 1840 (Goemans, Gleditsch, and Chiozza 2009). For the purposes of this exercise, we define a regime as a state that experiences an uninterrupted sequence of nonviolent leadership successions. In other words, a regime ends when succession involves violence.[3] Defined in this way, there have been 697 regimes in 162 countries since 1840.

Table 1 documents various percentiles of regime duration for several subsets of countries. The data reveal two important patterns.[4]

Table 1 about here.

First, violent regime change is common. Ten percent of all regimes last no more than one year, while half of all regimes last no more than eight years.   Three-quarters of the countries in the "all regimes" sample last no more than a generation (here, 24 years).   Finally, only ten percent of regimes last fifty years or more, less than an average human lifetime.

Second, the richest developing countries are more like poor developing countries than they are like the developed world.   Among developing countries with below-median incomes, fifty percent of regimes last only 7 years. In countries ranking between the 75th and 90th percentiles of income—the developing world elite—the corresponding figure is 12.5.   Finally, for the developed world (the richest decile of countries), the figure is 60.   Thus, *the richest*

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[3] This definition ignores major outbreaks of violence, such as civil wars, if they fail to alter succession. Thus, we provide a lower bound on political violence. Note also that we do not view a succession produced by an assassination as involving violence, unless the assassination was part of a successful attempt to take power. Thus, for example, the JFK-LBJ succession in the United States does not count as violent.
[4] Two points should be noted in interpreting these patterns. First, the data in this sample are truncated at both ends. To see this, consider the United States. The data begin in 1840, and codes every country then in existence as one year old, when in fact the United States had been in existence since 1776. Similarly, the data set codes the United States in 2003 as being 163 years old, when it will presumably last many more years. Second, the GDP data are from the post-WWII era.

developing countries move only 10% of the total distance between the third and first worlds in median duration.

All told, then, violent seizures of political power have been common in the developing world over the past century and a half. The only regimes in which violent regime change has been rare constitute the rich developed world.

3. How Developing Countries Mitigate the Problem of Violence

To understand the endemic violence documented in the previous section, we adopt the standard view that fighting results from a kind of bargaining failure (Fearon 1995, Powell 1999). Actors know that violent conflict is inefficient: had they reached the outcome resulting from their conflict by negotiation, thus avoiding the costs of fighting, everyone could have been better off. The challenge is to understand why their negotiations fail despite this recognition.

To illustrate in the context of a two-actor model, consider two factions in an incumbent regime—A and B—which bargain over the allocation of the rents of governance, π. Let v_A and v_B denote A's and B's violence potentials (abilities to fight) and $P_A(v_A, v_B)$ be the probability A would prevail in a conflict with B, were a violent contest for power (and rents) to erupt. The payoff to (risk-neutral) actor j from a fight is then $P_j(v_j, v_{-j})\pi - c_j$, where c_j is j's total expected cost of fighting. We envision the latter as reflecting both the *military* cost of fighting—paying soldiers, buying ammunition and so forth—and the *economic* cost of fighting—due to disruptions in j's business transactions caused by its conflict with $-j$.

Rent-Creation and the Proportionality Principle

A key result that follows from the bargaining perspective on violence is the

proportionality principle: Rents and privileges must be allocated in rough proportion to military

power in order to keep the peace. Specifically, let R_j denote j's share of the rents. Then the

proportionality principle says that peace can be maintained only if $R_j > P_j(v_j,v_{-j})\pi - c_j$ for j = A,B.

This expression says that each player's rents must exceed their expected value of fighting. If this

condition is not satisfied, then those groups with more power than rents prefer to fight for more,

rather than play by the regime's rules.[5]

NWW (2009) call polities that distribute rents in order to keep the peace *natural states*

because they have been the dominant form of social and economic organization since the

beginning of civilization. Indeed, until the last two hundred years, they constituted the only form

of state organization.[6]

Economists often interpret the natural state arrangements of rent-creation and privileges

as market intervention. Unfortunately, this concept obscures the logic of the natural state. The

observation that natural states create rents and manipulate markets for political purposes is

correct. But viewing this phenomenon as market intervention suggests that these countries began

with competitive markets that the state then transformed into non-competitive ones.

The economists' view has the problem backward. Countries must construct and protect

markets, by enforcing property rights, allowing open access to organizations, and so forth (as

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[5] The idea that privileges and policy benefits must be allocated roughly in proportion to power has a long history. It is central to Barrington Moore's (1966) famous work on the "social origins of dictatorship and democracy," and Harrington (1656) used it to explain the English Civil War (1641-49). More recently, formal models of rationalist war clearly derive the proportionality principle under conditions of complete information (cf. Fearon 1995, Powell 1999).

[6] With the possible exception of a small number of ancient societies, such as Athens. See Carugati, Ober, and Weingast (2014).

North 1990, Rodrik, Subramanian, and Trebbi 2004, and Acemoglu and Robinson 2011 have recognized). These pre-conditions of free markets depend on political choices; they are not natural endowments.

Limits on access

Natural states limit access to organizations (NWW 2009). The most obvious reason they do so is that rent-creation requires limiting competition. Entry dissipates rents, so natural states restrict the right to form competing organizations in many sectors of the economy.

Another reason natural states limit access to organizations is to prevent new groups from becoming powerful, thereby forcing incumbent elites to share rents and authority over policy. To preserve the existing distribution of violence potential, most regimes in developing countries have placed strong limits on who can form organizations. In many cases—including Mubarak's Egypt, Suharto's Indonesia and Hussein's Iraq—all significant organizations had strong ties to the ruler.[7]

Personal commitments

Another tactic that actors in natural states may be able to deploy is the exchange of commitments: endogenous adjustments of either violence potentials or the economic costs of fighting. We focus on the latter in this essay.

A and B can adjust the economic costs of fighting each other by, for example, investing in specialization-and-exchange relationships that will be profitable if and only if they continue to cooperate. If their cooperation will cease during violent struggles for power, such

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[7] In our formal notation, limiting access is a way to reduce the violence potential (v_j) of groups outside of the elite who form the regime.

relationship-specific investments create endogenous economic costs of conflict that can help

satisfy the proportionality principle (by raising c_A and c_B).

Summary

All told, then, we think of a natural state as constituted by three endogenous structural

features—limits, rents, and commitments—by which it mitigates the problem of violence. By

denying organizational rights to outsiders, a regime both reduces outsiders' ability to initiate

violence and creates rents. By distributing created rents among insider factions in proportion to

their probabilities of prevailing in fights, and fostering a matrix of personal economic

commitments among them, a natural state deters – but does not eliminate – internecine fights.

4. Bargaining and Adaptive Efficiency in Natural States

Many developing countries experience years of peace before succumbing to violence. If a

bargain had been struck to satisfy the proportionality principle and thereby generate peace, why

does it break down? And why is violence episodic?

The answer is that the world is constantly changing. In particular, shocks can alter the

balance of power so much that the existing distribution of rents and matrix of commitments no

longer suffice to ensure peace. After such a shock, groups which have gained in coercive power

must be allocated additional rents, or be made partners in additional lucrative business ventures

whose profitability depends on continued intra-elite cooperation, or both.

Unfortunately, bargaining over the new allocation of rents and the new matrix of

economic commitments does not always succeed. Both rents and commitments in natural states

are *personal*, meaning that the rents are conferred on particular persons by virtue of their

violence potentials and are typically not transferable. Commitments are made by bilateral

exchanges of hostages or specialized investments in joint economic enterprises and are similarly difficult to exchange.

During periods of stasis, the personality of rents and commitments does not pose a problem. After shocks that destroy the basis for peace, however, standard problems such as asymmetric information and inability to commit make it difficult to agree on how to reallocate personal rents and how to contrive new personal commitments. Bargaining failure, however, means that the parties resort to violence.

After violence erupts, the leaders of natural states almost always retain the design features that worsen their adaptive efficiency in the first place. The general structure of the natural state does not change, although the identity of the set of actors denied organizational rights changes, as does the matrix of personal commitments keeps the peace between the new set of insiders. In the next section, we explain why leaders of natural states find it difficult to open access and to devise impersonal commitments.

5. The Violence Trap

We have seen that natural states are prone to episodes of violence—empirically (section 2) and theoretically (section 4). After episodes of violence, factions in a natural state have a choice. They can retain the natural state's institutional design by creating rents, limiting access and fostering personal economic commitments among regime insiders. Or they can attempt economic and political reform by (1) lowering rents, (2) relaxing limits on access, and (3) fostering impersonal commitments.

In this section, we consider why natural states' factions face substantial difficulties in initiating the path of reform. Small doses of any one of these reforms violate the proportionality

condition and thus ensure violence; only large enough doses of all three reforms together have a chance of successfully establishing order on a new basis.   Thus, polities can be trapped in the inferior institutional equilibrium of the natural state because there are increasing returns to joint investment in rent reduction, open access, and impersonal commitment.   To elaborate, we focus on the economic pre-conditions of political reform.

The economic pre-conditions of open access

The proportionality principle implies that positive rents are needed to maintain peace, whenever at least one insider faction has a positive expected utility from war. Thus, a *necessary* precondition for transitioning from a natural to an open state is that—after the transition—the expected benefits of domestic war will fall short of the expected costs for *all* insider factions. Similarly, the post-transition expected benefit of domestic conflict must be negative for previously repressed elements of society (otherwise, they must be paid rents to keep the peace, meaning the state cannot be an open access order).   Whether all sides in fact expect negative utility from domestic conflict depends greatly, we shall argue, on the nature of the economy.

Consider the benefits of winning such conflicts first. Following Montesquieu (1989[1748]), many have argued that mobile wealth reduces the benefit of conquest, because the victor cannot reliably expropriate such wealth after winning. From here many conclude that economic development—because it generates specialized skills and other hard-to-confiscate assets—should pacify politics (Kant 1957[1795], Angell 1913[1911], Hirschmann 1997[1977], Gartzke 2007).

Consider the costs of fighting next. Following Steuart (1966[1767]), many have analogized complex modern economies to delicate watches that cannot operate under the stress

of domestic warfare. The resulting lost profits constitute endogenous *economic* costs of domestic war that are much higher than the analogous costs in less developed economies.

If the effects identified by Montesquieu and Steuart are large enough, there should exist a threshold of economic development above which no one is willing to fight in order to secure greater rents from the state. In terms of the bargaining model introduced above, economic development increase c_A and c_B. Once both these costs are high enough, the expected value of fighting becomes negative for both A and B. At this point, positive rents are no longer essential to preserve the peace and political reform towards open access becomes feasible. To the extent that opening access is similar to democratizing, the line of argument above might lead to Lipset's (1959, p. 75) famous modernization hypothesis: "the more well-to-do a nation [i.e., the more economically developed], the greater the chances that it will sustain democracy."

In our view, the effects of economic development on the costs and benefits of war cannot justify Lipset's modernization hypothesis (we discuss the literature on the Lipset hypothesis in section 7). But they can justify the following alternative hypothesis: complex economies—i.e., those characterized by relationship-specific investments across key domestic political cleavages—promote peaceful political transitions. Compared to Lipset, then, our proposition concerns a different treatment variable—economic complexity rather than high income; and a different response variable—the mere lack of violent contestation over political power rather than democracy per se. In the next few subsections, we explain these differences.[8]

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[8] Cusack, Iversen and Soskice (2007) argue that relationship-specific investments across the capital-labor divide promote less conflictual politics in general and proportional representation in particular.

The mercantilist curse

Consider a subset of domestic actors—we shall call them a club—who have made relationship-specific investments in some profitable enterprise.   For specificity, imagine that each actor specializes in producing a distinct intermediate product; and when all the intermediate products are combined, the joint enterprise can produce a final product more efficiently.   Club members thus earn a surplus, over and above what they could get by individual action. However, participants in such enterprises are vulnerable to being held up by the other participants.   If any one supplier fails to deliver their intermediate product, the final product cannot be made, and the flow of profits ceases (or diminishes).

If the members of a club commence military action against one another, some or all will cease cooperating economically, thereby destroying the economic surplus. Thus, relationship-specific investments become a commitment technology that endogenously raises the cost of intra-club fighting for all club members.

In potentially violent societies, however, relationship-specific investments in club C will be depressed by the perceived risk of conflicts among the members of C.   For example, if entrepreneurs from two rival ethnic groups consider investing in a joint venture, whose flow of profits will depend on their future cooperation, each may be deterred if the risk of conflict between their ethnic groups is too high.   For, were inter-ethnic conflict to erupt, either investor might decide to suspend cooperation to support the war effort or be forced to do so by their co-ethnics.   Thus, enterprises requiring specialized contributions from many actors may seek all those contributions from within a given ethnic group.   Such ethno-centric concentration will generally not be economically efficient but it will—by a mercantilist logic—protect the enterprise during inter-ethnic conflicts.   Thus, we expect that the larger the perceived risk of

violent conflict across a particular cleavage (in a given country at a given time), the more relationship-specific investments will be inefficiently concentrated within rather than among the potentially combatant groups.

But if investors avoid relationship-specific investments across a particular cleavage, then economic exchanges across that cleavage will be confined to market transactions.   If fighting breaks out, each combatant can therefore find close substitutes on the world market for what it previously bought from the other.   The relatively small economic consequences of fighting mean that the potentially combatant groups must negotiate their differences in a context in which one or both sides have credible outside options of violence.   This in turn exposes them to all the usual reasons that their negotiations can fail (Fearon 1995; Powell 1999).

We call this self-fulfilling process the *mercantilist curse*; namely, when the perceived risk of violence deters precisely the sorts of investment that would be most effective in permanently reducing that risk.   We believe this curse is an important mechanism trapping many countries in a cycle of political violence and economic underdevelopment.[9]

Traces of the mercantilist curse

We lack data on who has made relationship-specific investments with whom.   Thus, we cannot test the theory sketched above with systematic micro-data.

We can, however, examine a macro-level prediction that our theory entails.   To elaborate, consider three identical multi-ethnic countries.   In each, *n* ethnic groups are

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[9] We call it the mercantilist curse because it reflects the thinking and results in the second hundred years' war between England and France.   Each side believed they would be fighting again.   They therefore avoided reliance on the other, especially for key military inputs.   Their mercantilist restrictions on trade ensured that the economic costs each side bore, when the next war broke out, were minimized.   Thus, war was not prohibitively costly, meaning that informational asymmetries and commitment problems could, as they stochastically arose, precipitate war.   Had the two countries entered into full and entangling economic relations, in contrast, the economic costs of war would have been greater and thus the risk of war lower.

partitioned into two coalitions: one, *G*, supporting the government and one, *O*, in opposition. They differ, however, in investors' beliefs about the risk of inter-ethnic conflict(s).

In country 1, investors expect the war of all groups against all groups; even groups in the same coalition will fight one another. Investors thus limit their relationship-specific investments entirely to their own ethnic group. This concentration of investment within ethnic groups has three consequences. First, the economy has severely limited specialization and exchange. Second, intra-ethnic conflicts are rendered less likely. Third, inter-ethnic conflicts are rendered more likely—thus sustaining investors' original belief (a high risk of inter-ethnic conflict).

In country 2, investors see a risk of inter-coalitional conflict but view intra-coalitional conflict as unlikely. In this case, they concentrate their relationship-specific investments within their respective coalitions. Because investors have more potential partners from whom to choose, the economy exhibits greater specialization and exchange than in the first case, especially within the governing coalition (which may repress the analogous processes within the opposition). Additionally, conflict within each coalition is deterred; while investors' original assessment of the risk of inter-coalitional conflict is justified (as investments did nothing to raise the costs of such conflict).

In country 3, investors believe that no violent conflicts over power will erupt. They thus are free to enter relationship-specific investments with anyone. Consequently, the economy reaches its highest level of specialization and exchange.[10] Moreover, given a large number of

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[10] In all three scenarios, investors will face the usual economic reasons to hesitate before undertaking relationship-specific investments. We simply assume that these are held constant in the three cases; and are not so severe as to deter investment.

relationship-specific investments crossing all possible cleavages, the initial belief that peace will reign is justified.

An observable implication of our discussion, which we dub the *Specialization Hypothesis*, holds that *coups should be less likely in more specialized economies*. In terms of the examples given above, we call fighting between ethnic groups within the governing coalition "coups" and fighting between the governing and opposing coalitions "revolts" or "civil wars." In (least specialized) country 1, both coups and revolts are possible. In (more specialized) country 2, only revolts are possible, as coups have been deterred by the dispersal of relationship-specific investments across inter-ethnic cleavages within the governing coalition. Finally, in (most specialized) country 3, neither coups nor revolts are likely.

The cycle of violence

Because there are increasing returns to investment in the institutional features of open access orders, states can be caught indefinitely in the inferior institutional equilibrium of the natural state. On the one hand, large enough investments put the state within the basin of attraction of better institutions, wherein it benefits from a benign feedback loop: Specialized investments, by raising the cost of domestic violence, make such violence less likely; while lower risks of violence promote specialized investment, thereby further raising the costs of violence. On the other hand, natural states begin in the basin of attraction of their own inferior institutions and thus face a malignant feedback loop that leads them continually back to natural state principles. The threat of violence hinders investment, especially economic integration across groups likely to fight if violence breaks out; but the lack of economic integration means a low cost and hence high risk of violence.

6. Specialized economies, peaceful transitions

In this section, we test the Specialization Hypothesis—the proposition that coups should be less likely in more specialized economies.   Our dependent variable, $COUP_{jt}$, equals 1 if at least one coup occurs in country j, year t.[11]   To measure economic specialization, we rely on Hidalgo and Hausmann's (2009) economic complexity index (ECI), which reflects the array of different products of which a given country is a significant supplier in world trade.   We believe the ECI reflects specialization well: in order to be a significant world supplier of any commodity, a country needs to specialize in its production.   Hidalgo and Hausmann (2009) provide an extensive discussion of the index's construction and interpretation.[12]

To test the Specialization Hypothesis, we consider both random-effects and fixed-effects models of coup incidence.   Our fixed-effects estimating equation—which builds on the classic model of Londregan and Poole (1990)—takes the following form:

$$P[COUP_{jt} = 1] = \Phi[\alpha_j + \lambda_t + \sum_{k=1}^{5}\beta_k COUP_{j,t-k} + \gamma_1 POLITY_{j,t-5} + \gamma_2 GDP_{j,t-5} + \delta ECI_{j,t-5}] \quad (1)$$

Here, Φ denotes the cumulative normal distribution; α_j represents a fixed country-specific effect; and λ_t is a fixed year-specific effect.   We control for the first five lags of the dependent variable (following Londregan and Poole 1990), for each country's POLITY score as of t-5, and for the natural logarithm of GDP per capita as of t-5.   The regressor of primary interest is ECI, also measured as of t-5.

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[11] The data are from the PIPE dataset (Przeworski 2013).   We have also explored coup attempts, using the Marshall and Marshall (2014) data, finding similar results.

[12] The ECI does not directly assess whether specialization crosses key domestic political cleavages.   We assume, however, that it becomes harder to confine investments to a single faction as the economy becomes more complex.

Another approach is to use random country effects, rather than fixed effects. The advantage of this approach is that we can include more countries (119) in the analysis. The price for a larger sample of countries, however, is that the analysis relies mainly on cross-sectional comparisons.

Results

Table 2 presents results for our random-effects (Model 1) and fixed-effects (Model 2) specifications. In both specifications, we find is that coups are rarer in more complex economies—controlling for year effects, past violence, past level of democracy/autocracy, and past GDP per capita.

Many cross-sectional studies have previously shown that coups are less likely in richer countries. We control for GDP per capita in our cross-sectional analysis (Model 1) but, as can be seen, it never attains statistical significance. When we drop economic complexity from the analysis, however, then GDP per capita has its usual effect (correlating with the absence of coups).

<div align="center">Table 2 about here.</div>

These patterns make sense because GDP per capita and ECI are highly correlated, yet oil- and mineral-dependent regimes can be quite rich without having complex economies. Thus, our results say that riches from simple extractive economies do not deter coups but riches from complex economies do.

This finding holds also in our fixed-effects analysis. Model 2 shows that, in 39 countries experiencing at least one coup in the period 1964-2005, coups were less likely to occur as their economies became more complex.

The effects revealed in Table 2 are substantively important, as well as statistically significant. For example, the results in Model 2 imply that a one standard deviation increase in ECI reduces the probability of a coup by about .04 (in a country with mean values on all other variables). This is a large effect given that the sample mean is .13 (that is, among countries that ever experienced a coup attempt, about 13% of the country-years did so).

Results instrumenting for economic complexity

Models 1 and 2 view ECI as of t-5 as a pre-determined variable. One might, however, worry that some time-varying omitted variable—correlated with both lagged economic complexity and coup propensity—biases our results. To address this concern, Models 3 and 4 run two-stage probit regressions, in which ECI at t-5 is instrumented by (a) the mean economic complexity of each country's neighbors at t-5 and (b) the other exogenous variables in the model.[13] The notion is that globalization has driven regional economic development since the 1960s in a way that is exogenous to the domestic politics of any given country.[14]

Conditional on the other covariates, the mean complexity of neighbors' economies strongly predicts the focal country's economic complexity (see Table 2's first-stage results). In other words, our instrument is strong. Both the random-effects (Model 3) and fixed-effects (Model 4) second-stage results show that economic complexity deters coups. Thus, our results are consistent across all models.[15]

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[13] Neighborhoods are defined as the UN Population Division's 19 "major areas." Similar results obtain if we use conventionally defined regions.

[14] More formally, our identifying assumption is that economic complexity in neighboring countries as of t-5 does not correlate with the risk of a coup in the target country at t, once economic complexity in the target country at t-5 and the other covariates are controlled.

[15] The Wald test for exogeneity does not reject the null hypothesis that ECI at t-5 is exogenous. Thus, one might prefer Model 1 to 3 and Model 2 to 4.

Discussion

Montesquieu and Steuart argued that economic development should lower the benefit and raise the cost of fighting. They thus thought that development would promote constitutional limits on the executive. Lipset's modernization hypothesis holds that economic development, through various avenues, should promote democracy.

We argue that these two lines of argument share a common defect. It is perfectly possible for the insider factions of a particular regime to be economically interdependent, while adopting an essentially mercantilist attitude toward outsiders. If the insider factions are large enough, then they can accrue many of the advantages of specialization and exchange with trades amongst themselves and in international markets. The domestic economy can thus have some high-performing sectors, such as oil. Moreover, the multi-factional nature of supply chains in those sectors can raise the cost of intra-regime fighting—deterring coups. Yet, at the same time, these advanced sectors do nothing to raise the costs of insider-outsider conflicts or, relatedly, to convince the regime to liberalize.

To put it another way, economic development offers a tool chest of devices to lower the benefit and raise the cost of intra-elite fighting, just as Montesquieu and Steuart thought. However, those tools can be used by advanced industrial autocracies just as well as by advanced industrial democracies, especially if the autocracies pick a few military-industrial sectors in which to specialize.

7. The economic dynamism of open access orders

Countries that combine open access with complex economies should be politically stable and economically dynamic. The last section showed that economic complexity indeed promotes political stability (i.e., non-violent political transitions). In this section, we consider

whether open access orders—which we shall here equate to democracies—outperform their authoritarian counterparts.

Among previous studies focusing on cross-sectional comparisons, the conventional wisdom is that the mean growth rate in democracies is about the same as the mean growth rate in non-democracies (for reviews, see Przeworski and Limongi 1993; and Gerring et al. 2005). Figure 1, Panel A, illustrates this point by showing the distribution of one-year logarithmic growth rates for autocracies and democracies, based on data from 1964-2005. As can be seen, the only obvious difference between the two distributions is that the variance in growth rate is higher among the autocracies (as noted by Rodrik 2000; Mobarak 2005; NWW 2009). If one regresses growth on lagged GDP per capita and an indicator for democracy—a simplified version of the analysis conducted by Barro (1997)—one finds the usual "convergence effect" (richer countries grow more slowly) but no significant effect of democracy.

A series of more recent studies have argued that the democracy-on-growth effect takes time. Papaioannou and Siourounis (2008), Acemoglu et al. (2014) and others have argued that one should expect results from democracy only if it lasts some minimum number of years. Gerring et al. (2005), Persson and Tabellini (2009) and others have advanced the idea that democracy is a stock variable that accumulates over time, rather than a level variable. Typically focusing on within-country comparisons, these studies find robust effects of democracy on growth.

Figure 1, Panel B, illustrates the claim that democracy has long-term effects on growth by showing the distribution of ten-year logarithmic growth rates for autocracies and democracies. Democracies experience mean decadal growth nearly double that of autocracies, with variance

roughly half.   If one regresses decadal growth on GDP per capita at t-10 and an indicator for democracy, one again finds a convergence effect but now democracy significantly boosts expected growth.   The studies cited in the previous paragraph show that this basic finding survives when one adds a standard battery of control variables and country fixed effects.

For our purposes, two points are worth emphasizing about the current state of evidence. First, an important reason to expect open societies to outperform authoritarian regimes is that the former remove (or reduce) the *political* barriers to entry facing businesses, thereby facilitating competition in the short run and creative destruction in the long run.   Second, the economic dynamism of open societies helps to recreate the economic complexity that, as shown in the previous section, pacifies politics.   Thus, once a society manages the trick of combining political institutions that promote open access with complex economies, the two reinforce one another.

8. Conclusion

We have argued that a violence trap prevents politico-economic development. We started with a simple rationalist model of (domestic) war in which two polar kinds of state could in principle establish domestic tranquility, depending on the cost of warfare.

First, if the costs of domestic strife are relatively low, then suppressing violence requires rent-creation. Sufficiently high rents deter intra-regime conflict when they are targeted to individuals and groups with violence potential. The rents are productive, in the sense that they produce peace.   However, creating rents requires the state to limit access to economic opportunities, which hinders long-term economic performance. In other words, if the costs of

domestic war are low, then keeping the peace entails building what NWW (2009) call a natural state.

Second, if the costs of domestic strife are prohibitive, then neither rents nor limits are needed to keep the peace. This suggests that open access orders—ideally with no rents and no limits—can emerge when the costs of fighting are sufficiently high. Moreover, we argue that such states are uniquely capable of sustaining the economic conditions that keep the costs of fighting high.

Given these two institutional equilibria, with very different means for establishing order, we have asked why natural states do not reform, turning themselves into open access orders. Our answer is that they are caught in a violence trap.

The first part of the violence trap is that natural states lack adaptive efficiency, the ability to adapt to various shocks in the environment. Their key structural features—the allocation of rents among insiders, the imposition of limits on outsiders, and the negotiation of personal commitments among insiders—are not robust to shocks (Rodrik 2000). Indeed, by worsening actors' abilities to make credible commitments and ensuring intractably asymmetric information across actors, natural state arrangements foster bargaining failure after shocks that alter the balance of domestic power. Thus, while natural states can be very stable in static environments, they are prone to violence in dynamic ones.

The second part of the violence trap is that natural states are unable to reform, even in the aftermath of bouts of internal violence that might motivate a search for constitutional reforms able to establish a more durable peace. The reason for this inability is that sustainable political reforms require large simultaneous investments in rent reduction, open access and impersonal

commitment via economic specialization. To put it another way, sustainable political reform requires economic progress (in the form of Smithian specialization and increased economic integration), while economic progress requires political reform (opening access and lowering rents).

Our empirical work has focused mainly on showing that economic complexity promotes orderly, non-violent political transitions. The literature sparked by Lipset's modernization thesis has operationalized "economic development" as a higher GDP per capita; and argued that development should promote democratization. But there is no reason to expect high per-capita GDPs produced by resource extraction—as in Saudi Arabia or Equatorial Guinea—should push an incumbent regime toward democracy. Building on Steuart's classical argument, we have viewed development as consisting in the creation of a more complex economy whose workings will be more seriously disrupted by political violence. Thus, rather than measure development by GDP per capita, we measure it by the Economic Complexity Index (Hidalgo and Hausman 2009). We find that economic complexity strongly deters coups, even controlling for GDP per capita and the Polity2 score (a common measure of democracy).

Moreover, sufficient economic complexity makes it feasible to create a regime that does not rely on limiting access to solve the problem of violence. Those countries that do democratize can then embark on a path of development in which (1) economic complexity remains high and thus sustains orderly transitions (democracy becomes "self-enforcing"); and (2) democracy remains intact and thus facilitates further economic growth (growth becomes "self-sustaining").

Table 1: Regime duration in years

| Percentile	All countries	Countries with below-median GDP per capita	Countries in the 75th-90th percentiles of GDP per capita	Countries in the top decile of GDP per capita
10	1	1	2	10
25	3	2	4	34
50	8	7	12.5	60
75	24	17	45.5	88
90	50	34	71	131

Table 2: Economic complexity deters coups

Independent variable	Model 1: Probit (viewing L5.ECI as pre-determined)	Model 2: Probit (viewing L5.ECI as pre-determined)	Model 3: Probit (with L5.ECI instrumented)	Model 4: Probit (with L5.ECI instrumented)
L5.ECI	-0.263***	-0.385**	-0.253*	-0.608*
	(-3.42)	(-2.60)	(-2.00)	(-2.05)
L5.Polity2	-0.013	-0.18	-0.00662	-0.0169
	(-1.20)	(-1.18)	(-0.69)	(-1.14)
L5.ln(GDP)	-0.142	0.18	-0.119	0.257
	(-1.62)	(0.50)	(-1.44)	(0.72)
L1.coups	0.460*	0.146	0.731***	0.209
	(2.38)	(0.76)	(4.25)	(1.07)
L2.coups	0.079	-0.175	0.279	-0.214
	(0.37)	(-0.83)	(1.40)	(-1.00)
L3.coups	0.123	-0.145	0.245	-0.239
	(0.61)	(-0.73)	(1.27)	(-1.17)
L4.coups	-0.054	-0.265	0.0819	-0.311
	(-0.26)	(-1.29)	(0.42)	(-1.51)
L5.coups	0.052	-0.262	0.222	-0.335
	(0.25)	(-1.22)	(1.20)	(-1.54)
Year effects?	Yes	Yes	Yes	Yes
Country effects?	Random	Fixed	Random	Fixed
Pseudo-R^2	.31	.46	-	-
N observations	2583	1033	2583	1033
---First stage regression for Models 3 & 4---				
L5.Polity2			0.0235*** (11.46)	0.00485 (1.43)
L5.ln(GDP)			0.186*** (10.74)	-0.0346 (-0.49)
L5.ECI_neighbors			0.811*** (35.76)	0.839*** (14.96)
Year effects?			Yes	Yes
Country effects?			Random	Fixed
N observations	2583	1413	2583	1033

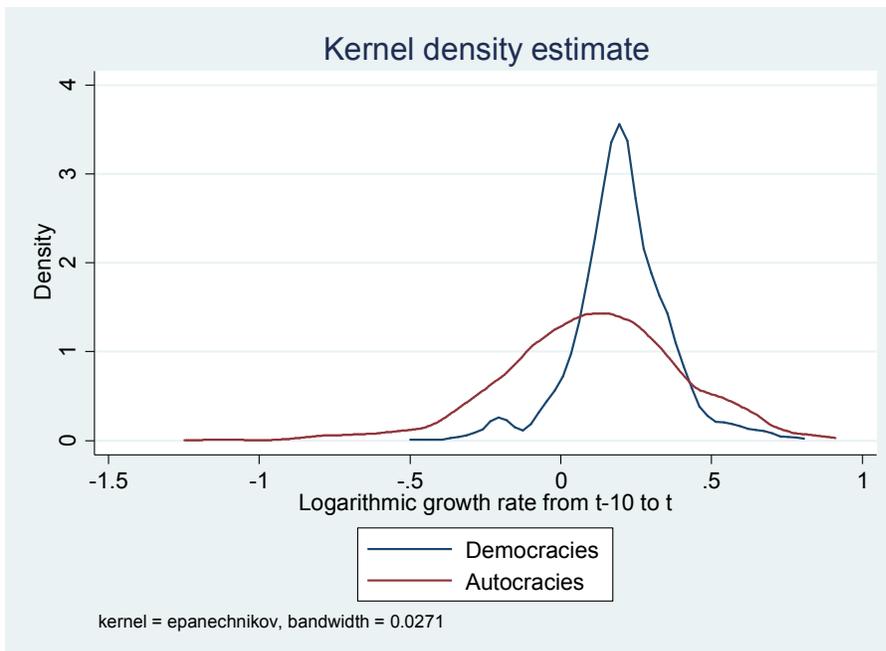t statistics in parentheses [* p<0.05, ** p<0.01, *** p<0.001]

The first-stage regression included all exogenous variables in the model; only three of the regressors' coefficients are displayed.

Figure 1: Logarithmic growth rate of GDP per capita, democracies versus autocracies, 1964-2005

Panel A: One-year growth
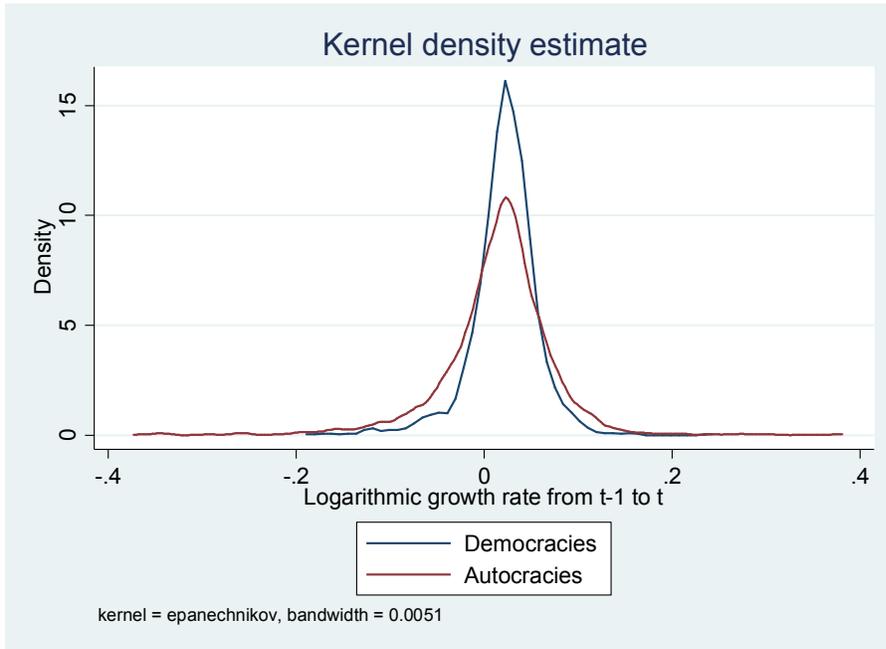
Panel B: Ten-year growth

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