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"Oil above Water": Economic Interdependence and Third-party Intervention

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Abstract

We explore economic incentives for third parties to intervene in ongoing internal wars. We develop a three-party model of the decision to intervene in conflict that highlights the role of the economic benefits accruing from the intervention and the potential costs. We present novel empirical results on the role of oil in motivating third-party military intervention. We find that the likelihood of a third-party intervention increases when (a) the country at war has large reserves of oil, (b) the relative competition in the sector is limited, and (c) the potential intervener has a higher demand for oil.

Keywords

intrastate conflict, third-party intervention

> The truth . . . always rises above falsehood as oil above water.
>
> —Miguel de Cervantes, *Don Quijote*, chapter X

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Civil wars are the dominant form of conflict in the world and constitute more than 90 percent of contemporary armed conflicts. Other states may intervene to foster specific outcomes in civil wars, or the externalities and threats entailed by ongoing civil wars for other states may promote intervention. By one estimate, about two-thirds (97 of 150) of all civil wars over the period from 1945 to 1997 see intervention by foreign countries or international organizations (Regan 2002). Much of the research on intervention in civil war has examined the effects on outcomes and duration (e.g., Regan 1996; Balch-Lindsay and Enterline 2000; Regan 2002; Doyle and Sambanis 2006; Findley and Teo 2006). There has been much less attention to who intervenes and why. The lack of any consensus over whether interventions in civil war decrease subsequent violence or not is not surprising, given the limited attention to the motivations and constraints faced by interveners. Some researchers assume that interveners seek to bring conflicts to a quicker end (Regan 2000). Others argue that interventions are likely to prolong wars by preventing specific outcomes that would have resulted in the absence of interventions (Balch-Lindsay and Enterline 2000; Trumbore 2003; Ross 2004).

Most existing works on motivations to intervene focus on a third party's security interests (i.e., proximity to conflict), humanitarian concerns (i.e., casualties and refugees) as well as ethnic and colonial ties to a conflict. The risk of transnational spread of a civil war can make states with strong interests in a region intervene to contain the conflict (e.g., Salehyan and Gleditsch 2006; Gleditsch 2007a, 2007b; Kathman 2011). We argue that external actors may also have vested economic interests in conflict outcomes that could motivate intervention. Most existing research on third-party intervention in civil war disregard the role of economic incentives and the ties to countries in conflict.[1] This is all the more remarkable as economic incentives are often held to exert a crucial role on the onset and duration of civil war. In particular, many have argued that low economic opportunities in the conventional economy and the potential for rents from looting or control of national resources can motivate resort to violence and rebel recruitment (Collier and Hoeffler 2004; Fearon and Laitin 2003; Besley and Persson 2008; Brückner and Ciccone 2010).

We believe the potential economic incentives to intervene in an internal war deserve more systematic attention. We develop a formal model that highlights key economic forces driving the decision to interfere in a civil war and details the potential benefits and costs. Recently more attention has been given to modeling third-party intervention formally, but there is still no consensus on how to best characterize third-party military intervention in civil war or how to integrate a third party into conventional two-party models of conflict (Bove and Smith 2011). Since military intervention is an expensive and risky endeavor, states must balance the expected costs of intervention against their strategic interests and possible benefits. Beyond the lack of attention to economic incentives, the existing literature on third-party intervention rarely endogenizes third-party actors in a two-party civil war model.

We focus on perhaps the most prominent natural resource, namely, oil (see, e.g., Colgan 2013a), and how the expected impact of conflict on oil prices can create

incentives to intervene. A number of studies find evidence of a direct effect on the risk of civil war from oil dependence, usually measured by oil exports as a share of a country's gross domestic product (GDP; Collier and Hoeffler 2004; Ross 2006).[2] There is also a large related literature on how oil influences regime survival and political stability. Our main interest in this study lies in the consequences of civil war on oil markets. Supply disruptions arising from dramatic geopolitical events such as wars have caused many salient oil shocks (see Hamilton [2011] for a recent survey on the history of the oil industry). Moreover, oil-related disruptions have been an important contributing factor in some recessions. From a demand-side perspective, an oil-importing country is clearly more likely to experience some drag on its economy as a result of oil shocks. Our model shows how potential interveners with substantial oil imports thus have incentives to contain hostilities, using intervention as a means of inhibiting or reducing the risk of conflict spillovers and economic turmoils.

Many arguments relating oil to foreign policy behavior are often underdeveloped and verge on conspiratorial arguments about resource capture (see, e.g., Colgan [2013b] for a critique of many conventional arguments on oil and conflict). However, this calls for more careful analysis and nuanced arguments rather than outright dismissal of the relevance of oil. Before turning to the development of our theory, we provide some simple examples where casual evidence suggests that states with greater needs for oil dependence have been more likely to intervene in oil-producing countries. For example, Chad, Mali, and Niger are all former French colonies in the Saharan interior in Africa that have experienced numerous civil wars, yet only some episodes have seen interventions. In the late 1970s and the 1980s, France intervened repeatedly in Chad to support the government, fighting rebels supported in part by Libya. Oil exploration in Chad started in 1969, and oil was known to exist when the civil war halted further exploration. By contrast, Niger has no natural resources, and the French displayed no interest in intervening in its civil war. Furthermore, France did not intervene in the earlier Tuareg rebellion in Mali in the 1990s when the country did not have known profitable oil reserves. However, following renewed interest in the prospects for oil extraction in Mali in the mid-2000s, France chose to intervene after the secessionist attempt in 2012. Although the key reason cited by France for intervening was to contain Islamic extremism, the incentives for intervention have arguably also increased with the presence of oil in the country and high oil prices.

To investigate more systematically whether the likelihood of external intervention is higher for conflicts in countries with oil, and in particular by oil-importing countries, we compile an extensive panel of oil wealth and oil trade data, including stock variables such as the oil endowment and the size of reserves for the conflict country as well as a potential third-party intervener's balance of trade in oil. The stock variables we use depend on geological features and previous exploration efforts. As such, they should be less affected by conflict or intervention and hence less vulnerable to endogeneity concerns than flow variables widely used in studies of civil wars such as fuel exports as a percentage of GDP. Moreover, the (potential) intervener's balance of

trade conveys information about the potential damage of regional instabilities to its oil supply. We test our theoretical framework empirically on a dyadic data set, pairing conflict states, and potential interveners over the period from 1945 to 1999.

To sum up, our contribution is fourfold: first, we present a novel theoretical model of how third-party intervention in civil wars can be influenced by oil export and import profiles of states to clearly identify the possible mechanisms relating oil abundance and oil dependence to the incentives and constraints faced by a third party in the decision to intervene in an ongoing civil war. Second, our formal model is the first effort to endogenize a third-party actor in a civil conflict model with production, trade, and economic incentives. Third, our study links the theoretical predictions from a formal model and empirical analysis, which Blattman and Miguel (2010) lament is rare in research on civil war, using a nearly exhaustive sample of 69 countries with civil wars and 202 potential intervening countries for the post–World War II period. Finally, this is the first quantitative analysis of intervention and oil that incorporates the full set of oil-related variables, including bilateral import and export, reserves, endowments, production, and market concentration. Moreover, we are able to factor in at the same time both supply-side and demand-side concerns.

We proceed as follows: We first present a model of conflict with the possibility of third-party intervention. We then introduce the data used in the empirical tests of the propositions. We demonstrate empirical support for our theoretical predictions. We conclude with some observations on the broader relevance of our results for understanding economic interdependence and intervention in conflict.

Theoretical Framework

We approach intervention by third parties in a civil war as a unilateral decision for simplicity. Bueno de Mesquita's (1980) expected utility model of conflict initiation provides one of the first efforts to model multiparty conflict through letting third-party interventions influence the likelihood that one side of the conflict will win as well as the likely postconflict outcome through their policy positions. However, the framework is applied to wars between states rather than civil war, and the focus is primarily on military aspects as influence is measured only through military capabilities while policy preferences are inferred from alliance portfolios. Most of the literature on peacekeeping in civil war tends to focus on public benefits of intervention, and most of the attention to private concerns is on the cost side.[3] Unlike previous models of intervention, we go beyond the purely military effects and highlight the economic motives of interveners. Siqueira (2003) studies the consequences of third-party intervention on the warring parties' conflict incentives but without explicitly modeling the intervener's incentives. Chang, Potter, and Sanders (2007) consider how the interaction of the conflict technology of a third-party intervener and the belligerents affects the subgame perfect Nash equilibrium outcome. In their model, a third party can secure peace or disrupt an existing peaceful order, depending on the nature of the conflict and its objectives.

The main focus of these models is how intervention affects conflict outcome, assuming that some form of altruism or local polity/policy focus motivates the interveners. None go beyond the canonical characterization of conflict and intervention as a struggle for victory on the battleground. Moreover, they incorporate only military features (e.g., the fighting effort and the success ratio) while ignoring a number of potentially important nonmilitary motives to intervene. While Chang, Potter, and Sanders (2007) and Chang and Sanders (2009) do consider the economic motivations of third parties to intervene militarily, the benefits of intervention are assumed to be exogenous. Our formalization explicitly takes into account how economic factors may explain why some conflicts attract interventions while others do not.

We model the military dimension of third-party intervention by adopting the approach introduced by Grossman and Kim (1995) and more recently applied by Dunne et al. (2006), whereby military intervention might deter civil war.[4] To avoid the intricacies inherent to conflict games with simultaneous timing (see De Luca and Sekeris 2013), we assume that the target player and the intervener decide their armament levels *prior* to the potential aggressor taking an action, thus implying that the latter may be disincentivized from prolonging the civil war.[5] The incentives for third-party interventions are intimately linked to the oil market and its structure in our model. More specifically, we consider the world oil market to be an oligopolistic market, whereby the equilibrium price of oil will be a function of the market power of oil producers. To capture this market structure feature, we adopt a Cournot competition framework and consider the decision of a third party to intervene militarily or not in an oil-producing country.

The Model

We consider a world composed of two types of countries, namely, oil-producing countries and non-oil-producing ones. There is a finite number $H > 2$ of oil-producing countries, and a continuum of non-oil-producing countries described by the set K.[6] Defining the set of all world's countries as I, we have $H, K \subset I$. We normalize the total number of countries to unity. Moreover, we assume that one particular country $\omega \subset H$ is experiencing a civil war, pitting a rebel group against the central government. The ultimate goal of this model is to study the conditions favoring a third-party intervention (TPI henceforth) in country ω.

Demand Side

Each country $i \in I$ is populated by a continuum of agents. The consumers' utility functions are modeled as in Singh and Vives (1984). Using z and q to designate the quantities of consumed non-oil and oil good, respectively, the utility of a representative individual of country $i \in I$ is given by

$$v_i = z_i + \alpha q_i - \beta \frac{q_i^2}{2}, \tag{1}$$

where α and β can be interpreted as demand for oil parameters.

The budget constraint of this representative consumer is given by

$$w_i + \pi_i \geq z_i + pq_i + a_i, \tag{2}$$

where π_i are the oil-related profits in country i, and thus equal to zero in non-oil-producing countries. The parameter w_i captures the country's non-oil-related wealth.[7] The parameter p indicates the international price of oil, while the price of the non-oil good is normalized to unity. Finally, a_i describes country i's military expenditures that are more carefully described subsequently.

Supply Side

All oil-producing countries with the exception of country ω face the same technological constraint: The unit cost of oil production is equal to c. Moreover, the world demand for oil is given by $Q(p)$. The profits of any oil-producing country $h \in H \backslash \omega$ are therefore

$$\pi_h = p(Q)q_h - cq_h. \tag{3}$$

If the civil war persists in country ω, its extraction cost is prohibitively high, and its production is therefore nil; otherwise, country ω's unit extraction cost is equal to c_ω.

In country ω, rebel group r challenges the government for the control of the country. The value of ruling the country is taken to equal some exogenous value W, which is the same for the government and the rebel group.[8] The conflict technology in case of continued civil war is a standard contest success function (CSF) technology, where the likelihood that the actual government remains in power is given by

$$\lambda(a, r) = \frac{a}{a + r}, \tag{4}$$

where a stands for the government's strength (whether provided by the government itself, a_ω, or by a TPI, a_T) and r designates the rebels' strength. The unit cost of arming is constant for both sides and equal to unity and the government's budget equals exogenous wealth w_ω.

The timing of the game is the following:

1. The government of country ω decides the size of its army, a_ω.
2. The TPI decides the amount of troops/military aid to invest in supporting the government of country ω, a_T.
3. The opposition decides whether or not to prolong the civil war and accordingly its fighting effort r.
4. Oil producers export their product on world markets and markets clear.

We solve the game by backward induction.

Stage 4. We find the demand for oil from the representative consumer of any country $i \in I$ by optimizing equation (1) with respect to q_i, after replacing the budget constraint in the objective function. The solution to this problem is given by[9]

$$q_i^d = \frac{\alpha - p}{\beta}. \tag{5}$$

The utility of the representative individual in any country i if country ω is, respectively, at peace or war is given by

$$v_i^p = w_i + \pi_i(H) + \frac{(\alpha - p(H))^2}{2\beta} - a_i, \tag{6}$$

$$v_i^w = w_i + \pi_i(H\backslash\omega) + \frac{(\alpha - p(H\backslash\omega))^2}{2\beta} - a_i, \tag{7}$$

with $\pi_i(.) = 0$ if country i does not produce oil, and $a_i > 0$ if country i deploys a military force in country ω.

Since there is a continuum of countries with the same type of consumers, the aggregate demand for oil in the international market is the same as the country demands for oil, namely $Q^d = q_i^d$ as given by equation (5). The H oil-producing countries maximize their profits given the oligopolistic structure of the market[10] and given the aggregate demand for oil. If the civil war in country ω comes to an end, country i's ($i = h, \omega$) maximization problem is given by

$$\max_{q_i}(\alpha - \beta Q)q_i - c_i q_i. \tag{8}$$

At optimality we obtain, respectively, for country ω and for any other oil-producing country h

$$a - 2\beta q_\omega - \beta \sum_{\substack{j \in H \\ j \neq \omega}} q_j - c_\omega = O \Leftrightarrow a - \beta \sum_{j \in H} q_j = c_\omega + \beta q_\omega, \tag{9}$$

$$a - 2\beta q_h - \beta \sum_{\substack{j \in H \\ j \neq h}} q_j - c = O \Leftrightarrow a - \beta \sum_{j \in H} q_j = c + \beta q_h, \tag{10}$$

where, in equation (10), c_h is set equal to c as previously stated. We can combine equations (9) and (10) to obtain

$$q_h = q_\omega + \frac{c_\omega - c}{\beta}. \tag{11}$$

Imposing symmetry on the $H-1$ oil producers other than ω, we can substitute equation (11) in equations (9) and (10) to deduce the equilibrium production levels:

$$q_{\omega} = \frac{\alpha - c - H(c_{\omega} - c)}{\beta(H+1)}, \tag{12}$$

$$q_h = \frac{\alpha + c_{\omega} - 2c}{\beta(H+1)}. \tag{13}$$

Aggregating implies

$$Q^s = \frac{H(\alpha - c) + c - c_{\omega}}{\beta(H+1)}. \tag{14}$$

And therefore the equilibrium price is given by

$$p = \frac{\alpha + Hc + (c_{\omega} - c)}{H+1}. \tag{15}$$

Finally, we are in a position to compute the equilibrium profits:

$$\pi_{\omega}(H) = \frac{(\alpha - c - H(c_{\omega} - c))^2}{\beta(H+1)^2}, \tag{16}$$

$$\pi_h(H) = \frac{(\alpha + c_{\omega} - 2c)^2}{\beta(H+1)^2}. \tag{17}$$

If the civil war in country ω is not brought to an end, no oil is produced in country h, and the world quantities and prices of oil are, respectively, given by

$$Q^s(H\backslash\omega) = \frac{(H-1)(\alpha - c)}{\beta H}, \tag{18}$$

$$p(H\backslash\omega) = \frac{\alpha + (H-1)c}{H}. \tag{19}$$

Hence, the profits of any oil-producing country $h \neq \omega$:

$$\pi_h(H\backslash\omega) = \frac{(\alpha - c)^2}{\beta H^2}. \tag{20}$$

Stage 3. If the rebels are not deterred in their attempt to control country ω, their payoff is given by

$$v_o = \frac{r}{a+r} W - r, \tag{21}$$

where W designates the value of controlling the country. Optimizing yields the following reaction function:

$$r(a) = (aW)^{1/2} - a. \tag{22}$$

Hence, the associated utility is

$$v_o(a) = \left(W^{1/2} - a^{1/2}\right)^2. \tag{23}$$

Therefore, if $a \geq W$, the rebels are disincentivized from pursuing the civil war and they earn zero utility; otherwise they prolong the civil war and obtain the payoff in equation (23).

Stage 2. Comparing the values of v_i^p and v_i^w from equations (6) and (7), we deduce that country i intervenes in the country experiencing a civil war, ω, if

$$w_i + \pi_i(H) + \frac{(\alpha - p(H))^2}{2\beta} - a_i(a_\omega) \geq w_i + \pi_i(H\backslash\omega) + \frac{(\alpha - p(H\backslash\omega))^2}{2\beta}. \tag{24}$$

The right-hand side (RHS) payoffs follow from the fact that if the civil war cannot be stopped, the peace-related benefits are in any case lost so country i has no incentives in deploying a deterrent force in the host country. Alternatively, collecting all the terms on the left-hand side (LHS), we can use the notation $\Delta_i = \pi_i(H) + \frac{(\alpha - p(H))^2}{2\beta} - \pi_i(H\backslash\omega) - \frac{(\alpha - p(H\backslash\omega))^2}{2\beta}$ and therefore rewrite inequality (24) as

$$\Delta_i - a_i(a_\omega) \geq 0. \tag{25}$$

In words, in this expression, Δ_i synthesizes the benefits of intervention in country ω for country i while $a_i(a_\omega)$ stands for the cost of this operation.

We can therefore define the reaction function of the TPI, $a_i(a_\omega)$, as

$$a_i(a_\omega) = \begin{cases} \max\{W - a_\omega, 0\} & \text{if } \Delta_i \geq W - a_\omega \\ 0 & \text{otherwise} \end{cases},$$

where the value W is the cost of civil war-deterring troops derived in stage 3 from equation (23), and a_ω are the troops already deployed by the local government in country ω.

Stage 1. The last step to complete the analysis is to determine the host government's optimal strategy. The host government may either attempt to deter the rebels from prolonging the civil war or confront the rebels on the battleground. The optimal action of the host government if it wants to end the civil war is to invest the minimal required amount of troops provided the expected reaction of the TPI. Defining by $\underline{a}_G$ the minimal required investment of the host government for deterrence to be achieved at equilibrium, we have that $\underline{a}_G = W - a_i(a_\omega)$. On the other hand, if the host government decides to combat the rebels, then

$$a_\omega = \arg\max_{a_\omega}\left\{\frac{a_\omega}{a_\omega + r(a_\omega)}W - a_\omega\right\} = a_\omega = \arg\max_{a_\omega}\left\{(a_\omega W)^{1/2} - a_\omega\right\} = \frac{W}{4}.$$

We therefore deduce that at equilibrium, the civil war is terminated if the utility for country ω's government of the rebels being deterred is higher than its utility of prolonging the civil war

$$w_\omega + \pi_\omega(H) + \frac{(\alpha - p(H))^2}{2\beta} + W - \underline{a}_\omega \geq w_\omega + \frac{(\alpha - p(H\backslash\omega))^2}{2\beta} + \frac{W}{4}. \qquad (26)$$

The LHS of equation (26) captures the peacetime utility in country ω, provided the government expends an amount $\underline{a}_\omega$ deterring the rebel forces from pursuing the civil war. Note that if the TPI is expected to intervene, irrespective, of the value of a_ω, then $\underline{a}_\omega = 0$. The RHS captures the country's payoffs when the civil war is prolonged. In the remainder of the article, we shall assume that the host government is too poor to deter the civil war on its own (i.e., $w_\omega < W$) so as to focus on the subset of countries under civil war where third-party interveners can help end violence, provided they have incentives to do so.

TPIs

We assume that the marginal extraction cost of oil is likely to be higher when oil is scarcer.[11] A general result may then easily be derived from equation (24).

Proposition 1: The higher the oil endowments of an oil-producing country experiencing a civil war, the more likely a TPI.

Proof. Differentiating equation (24) with respect to c_ω affects only $p(H)$ and $\pi(H)$, thus leaving the RHS unaffected. Differentiating the LHS of equation (24) yields

$$\frac{1}{\beta(H+1)^2}((2-H)\alpha + 3c_\omega - 5c).$$

Since $H > 2$, upon inspection of $\pi_\omega(H)$, we deduce that $\alpha > 3c_\omega - 2c$ for $\pi_\omega(H) > 0$, which is a necessary condition for ω not to leave the market. This implies that $\alpha > 3c_\omega - 5c$. □

This proposition implies that the incentives to intervene are higher, the larger the oil endowments of the country experiencing a civil war, irrespective of the identity of a potential TPI. This result is straightforward for *non-oil-producing* countries that are more eager to prevent civil war in highly endowed countries. Indeed, the disruption of the latter's oil industry would increase international oil prices more than in a case where the oil producer is poorly endowed. The less obvious result relates to *oil-producing* countries whose profits increase following oil disruption. The profits of these oil producers are independent of country ω's reserves under civil war since the

latter's industry stops functioning. As a consequence, country ω's reserves affect any oil producer's incentives to intervene through (1) the (negative) impact of high oil reserves on the other producers' profits and (2) the (positive) impact of high oil reserves on the reduced world oil prices for consumers. We nevertheless show that the higher the reserves of the country likely to experience a civil war, the more likely the oil-producing country intervenes militarily in the former, despite the positive effect of the change in production on profits.

Let us next consider specifically oil-importing countries $k \in K$, which, by assumption, do not produce oil and thus do not receive any resulting profits, $\pi_k = 0$. The condition for any such country k to intervene simplifies to

$$\Xi = w_k + \frac{(\alpha - p(H))^2}{2\beta} - a_k\left(a_\omega^*\right) - w_k - \frac{(\alpha - p(H\backslash\omega))^2}{2\beta} \geq 0. \tag{27}$$

This expression allows us to derive the following result.

Proposition 2: The more oligopolistic the market for oil, the more likely a TPI

Proof. Differentiating Ξ with respect to the number of oil-producing countries, H, yields

$$\frac{\partial \Xi}{\partial H} = -\frac{(\alpha - p(H))\partial p(H)/\partial H}{\beta} + \frac{(\alpha - p(H\backslash\omega))\partial p(H\backslash\omega)/\partial H}{\beta}$$

or

$$\frac{\partial \Xi}{\partial H} = \frac{1}{\beta}((\alpha - p(H\backslash\omega))\partial p(H\backslash\omega)/\partial H - (\alpha - p(H))\partial p(H)/\partial H). \tag{28}$$

Using the equilibrium values derived, this expression becomes

$$\frac{1}{\beta}\left(\frac{(\alpha - c)H + c - c_\omega}{(H+1)^3}(\alpha - 2c + c_\omega) - \frac{(H-1)(\alpha - c)^2}{H^3}\right). \tag{29}$$

Differentiating equation (29) with respect to c_ω yields a positive expression conditional on $(a - c)(H - 1) > 2(c_\omega - c)$. For country ω to be active on this market, it is necessary that π_ω as given by equation (16) is positive, which implies $a - c > H(c_\omega - c)$. We therefore have

$$(a - c)(H - 1) > H(H - 1) > 2(c_\omega - c),$$

with the last inequality following from the assumption that $H > 2$. We can therefore deduce that if equation (29) is negative for the maximal value c_ω may take, it is also negative for smaller values of c_ω. The highest admissible value of c_ω is a cost sufficiently high to drive the optimal production of country ω to zero; hence, $c_\omega^{\max}$ must be

such that q_ω as given by equation (12) is equal to zero or $c_\omega^{\max} = \frac{(\alpha - c)}{H} + c$. Replacing c_ω by $c_\omega^{\max}$ in equation (29) allows us to conclude that the expression is negative, if

$$\left(\frac{(\alpha - c)H - \frac{\alpha - c}{H}}{(H+1)^3}\right)\left(\alpha - c + \frac{\alpha - c}{H}\right) < \frac{(H-1)(\alpha - c)^2}{H^3}, \tag{30}$$

or

$$\frac{\partial \Xi}{\partial H} < 0 \Leftarrow \frac{(H - \frac{1}{H})(1 + \frac{1}{H})}{(H+1)^3} < \frac{(H-1)}{H^3}. \tag{31}$$

Developing and rearranging yields

$$\frac{\partial \Xi}{\partial H} < 0 \Leftarrow 0 < H^3 + H^2 - H - 1, \tag{32}$$

With the second inequality being verified in the relevant range of parameters, that is, for $H > 2$. □

Increasing competition in the oil-production market implies that prices will decrease under both scenarios, that is, whether country ω is peaceful or experiences a civil war. Yet, the effect of increased competition on prices—that is, the elasticity of prices to the number of producers—is stronger for low levels of competition. For higher levels of competition, the gap in prices between intervention and nonintervention tends to narrow, thus reducing the incentives to intervene in country ω.

Oil-importing countries can also be shown to be increasingly likely to intervene, the higher their imports.

Proposition 3: The higher the oil imports of a country, the more likely it intervenes militarily in an oil-producing country experiencing civil war.

Proof. This result follows from the fact the LHS of equation (27) can easily be shown to be increasing in α and decreasing in β, the two demand parameters where the demand—and therefore the imports—is increasing in α and decreasing in β. □

Data and Empirical strategy

We now turn to an empirical analysis of our three propositions on TPIs in a civil war. We first describe our data.

Dependent Variable

Our TPI data come from Koga (2011), who extends Regan's (2002) original intervention data with additional information from Pearson and Baumann (1993) and Pearson and Baumann (1993). The data cover the civil wars identified by Fearon and Laitin over the 1945–1999 period. Military intervention in a civil conflict is defined

as "convention breaking military activities in the internal affairs of a foreign country targeted at the authority structures of the government with the aim of affecting the balance of power between the government and opposition forces" (see Regan 1998, 756). The units of observation are dyad years, pairing the country at war with potential interveners for all the years of the conflict.[12] Every state in the international system is considered a potential intervener in each civil war. Figure 1 shows the number of civil wars and TPIs in our data set.

Oil

We have assembled a comprehensive data set on oil, which includes stock variables such as oil reserves, oil endowment, wildcats, and new discoveries, as well as flow variables such as oil imports and exports, and oil prices. *Oil reserves* and *oil initial endowment*[13] in thousand million barrels and crude oil prices in US$1,990 per barrel are taken from Cotet and Tsui (2013), drawing on information from the *Association for the Study of Peak Oil and Gas*, the *BP Statistical Review of World Energy*, and the *Oil & Gas Journal*. We also consider the number of *wildcats* (i.e., exploratory borehole), drilled at any given year and new *oil discoveries* in thousand million barrels, which can be treated as a positive oil shock.

For oil imports and oil exports, we use data from Feenstra et al. (2005) available for the period from 1962 to 2000. We construct the following three indicators: (1) the *balance of trade in oil*, (2) *bilateral oil imports*, and (3) a competition indicator, *the Herfindahl–Hirschman Index* (*HHI*), based on the relative size of oil-exporting countries to the world oil markets. Our balance measure considers the difference between oil export and oil import volumes in cubic meters (only available from 1984 on). A positive value indicates that the third party is a net exporter, as in the case of Saudi Arabia. The bilateral oil import measures the amount imported by the third party from the conflict state. For our competition indicator, we use a commonly accepted measure of market concentration, the HHI defined as the sum of the squared market share (in percentage) of each exporting country in the oil market. The HHI can range from close to 0 to 10,000. In a perfectly competitive market, HHI approaches zero while higher values of the index indicate a market approaching a monopoly.[14] We create the HHI using data on the quantity of oil exported by each country in the world every year. The aforementioned measures are fine-grained variables and allow us to submit our theoretical arguments to rigorous testing.

Control Variables

To anchor our results in the existing literature on TPI, we build on Koga's model specification, with explanatory variables pertaining to the characteristics of a potential intervener, the characteristics of the conflict state, and connections between them. In particular, we include the *Polity IV* scores, indicating the level of democracy, for both the potential intervener and country at war. To capture the relative

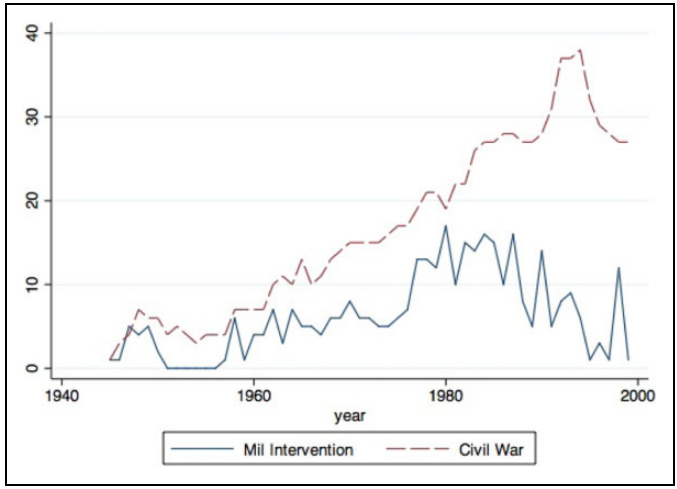

Figure 1. Number of civil wars and military interventions.

fighting effort and the conflict technology of the opposition, we consider the *rebel strength*, an ordinal measure of the military strength of rebels relative to the government, which is meant to proxy for the ability to target government forces, the ability of rebel groups to resist repression, and the availability of nonviolent alternatives (Cunningham, Gleditsch, and Salehyan 2009). The *capability ratio* is the ratio of the capabilities of the third party over the conflict state, based on the the Correlates of War's Composite Index of National Capabilities. We control for connections between the third-party state and the country at war, in particular the capital-to-capital *distance* between the conflict and third-party states and the existence of *ethnic ties* between the key supporters of a political leader in a third-party state and an ethnic group in power in a conflict state. Data on ethnic ties were assembled by Koga, drawing on information from Nome (2013) and Fearon, Kasara, and Laitin (2007). We also consider dummies for the Cold War and for whether the third-party state is a *major power*. Finally, we control for *previous interventions* by other countries in the same civil conflict as well as the number of years since the last military intervention (*spellyear*) for the same dyad. We report probit estimates with robust standard errors, clustering by dyads to take into account heteroskedasticity. We transform all the positive continuous variables into logs to scale down the variance and reduce the effect of outliers.

Results

Our theoretical model makes it clear that oil trade has two sides, demand and supply, like every other economic transaction. The results in Tables 1 and 2 focus on the supply side and show how a third party's decision is based upon the attributes of the

Table 1. Supply Side—Endowment.

	Model A	Model B	Model C	Model D
Third-party polity	.007 (.007)	.006 (.007)	.007 (.007)	.006 (.007)
Conflict state polity	−.018** (.008)	−.022** (.009)	−.024*** (.009)	−.026*** (.009)
Capability ratio	.172*** (.033)	.166*** (.033)	.140*** (.035)	.174*** (.034)
Major powers	.857*** (.155)	.903*** (.167)	.978*** (.165)	.886*** (.171)
Rebel strength	.132* (.077)	.127* (.076)	.100 (.071)	.106 (.072)
Previous intervention	.436*** (.075)	.424*** (.078)	.420*** (.076)	.437*** (.080)
Spellyear	−.074*** (.016)	−.064*** (.019)	−.063*** (.019)	−.065*** (.018)
Ethnic ties	.584*** (.135)	.600*** (.150)	.587*** (.150)	.588*** (.148)
Distance	−.490*** (.071)	−.527*** (.080)	−.516*** (.082)	−.537*** (.079)
Cold War	.351** (.138)	.389*** (.146)	.399*** (.145)	.392*** (.144)
Oil reserves	.019*** (0.007)			
Oil endowment		.067* (0.037)		
Oil new discoveries			−.020 (0.133)	
Number wildcats				.091** (0.041)
Observations	69,406	55,567	55,567	55,567

Note: Robust standard errors are given in parentheses clustered by dyad.
*$p < .10$. **$p < .05$. ***$p < .01$.

Table 2. Supply Side—Value.

	Model A	Model B	Model C	Model D
Third-party polity	.006 (.007)	.007 (.007)	.007 (.007)	.006 (.007)
Conflict state polity	−.018** (.008)	−.021** (.009)	−.024*** (.009)	−.026*** (.009)
Capability ratio	.175*** (.033)	.170*** (.034)	.150*** (.036)	.172*** (.033)
Major powers	.853*** (.156)	.896*** (.168)	.945*** (.168)	.894*** (.168)
Rebel strength	.136* (.078)	.149* (.076)	.101 (.071)	.115 (.073)
Previous intervention	.434*** (.075)	.418*** (.078)	.426*** (.077)	.431*** (.079)
Spellyear	−.075*** (.017)	−.065*** (.019)	−.064*** (.019)	−.066*** (.018)
Ethnic ties	.586*** (.134)	.606*** (.150)	.599*** (.149)	.594*** (.148)
Distance	−.492*** (.070)	−.536*** (.078)	−.518*** (.081)	−.539*** (.077)
Cold War	.353** (.138)	.397*** (.146)	.387*** (.144)	.398*** (.145)
Value oil reserves	.016*** (0.006)			
Value oil endowment		.044** (0.022)		
Value new discoveries			.044 (0.038)	
Value wildcats				.043** (0.019)
Observations	69,406	55,567	55,567	55,567

Note: Robust standard errors are given in parentheses clustered by dyad.
*$p < .10$. **$p < .05$. ***$p < .01$.

Table 3. Demand Side and Market Structure—Quantity.

	Model A	Model B	Model C	Model D
Third-party polity	.004 (.010)	.006 (.010)	.006 (.010)	−.006 (.022)
Conflict state polity	−.018 (.015)	−.016 (.015)	−.017 (.016)	−.039 (.030)
Capability ratio	.218*** (.069)	.214*** (.070)	.215*** (.069)	.320*** (.086)
Major powers	.603** (.246)	.621** (.247)	.619** (.245)	1.010*** (.383)
Rebel strength	.083 (.122)	.115 (.137)	.104 (.136)	.209 (.158)
Previous intervention	.459*** (.153)	.453*** (.154)	.459*** (.154)	.843*** (.277)
Spellyear	−.067*** (.024)	−.071*** (.025)	−.070*** (.025)	−.077*** (.020)
Ethnic ties	.670*** (.184)	.663*** (.189)	.706*** (.191)	1.268*** (.328)
Distance	−.510*** (.083)	−.520*** (.086)	−.517*** (.087)	−.454*** (.124)
Cold War	.597** (.258)	.597** (.262)	.581** (.259)	.633*** (.236)
Oil reserves	.032*** (.009)	.033*** (.009)	.028*** (.010)	.067*** (.023)
Balance of trade	−2.003** (.848)	−1.899** (.836)	−1.049 (.905)	
HHI		259.629** (122.148)	253.027** (120.873)	
Oil Reserves × Balance Trade			−.110** (0.051)	
Bilateral oil imports				.073*** (0.021)
Observations	31,951	31,951	31,951	7,291

Note: Robust standard errors are given in parentheses clustered by dyad. HHI = Herfindahl–Hirschman Index.
*$p < .10$. **$p < .05$. ***$p < .01$.

conflict state in terms of oil wealth (i.e., proposition 1), while Tables 3 and 4 include the demand side, that is, the intervener's demand for oil, and the characteristics of the market (i.e., Propositions 2 and 3).

Before discussing our main explanatory variables, we briefly summarize the results with regard to the control variables, which in general do not differ notably from previous studies. The Polity IV score of the intervener does not significantly affect the likelihood of intervention, while we are more likely to see intervention in more autocratic conflict states. The higher the military advantage of a third-party state over a conflict state, the higher the odds of military intervention. Unsurprisingly, major powers are more able and willing to intervene. Higher rebel capabilities increase the probability of a military intervention, possibly because the term picks up weaker governments with a lower chance to prevail and prospects for a peaceful settlement process. Taken together, these results suggest that intervention in favor of the government or a rebel group is more likely when this

Table 4. Demand side and Market Structure—Value.

	Model A	Model B	Model C	Model D
Third-party polity	.003 (.011)	.005 (.011)	.004 (.011)	−.006 (.021)
Conflict state polity	−.017 (.015)	−.015 (.015)	−.016 (.015)	−.039 (.029)
Capability ratio	.218*** (.071)	.214*** (.072)	.217*** (.072)	.321*** (.089)
Major powers	.602** (.254)	.615** (.255)	.612** (.254)	1.026*** (.394)
Rebel strength	.099 (.123)	.133 (.139)	.121 (.139)	.209 (.161)
Previous intervention	.456*** (.155)	.450*** (.155)	.463*** (.156)	.856*** (.278)
Spellyear	−.066*** (.024)	−.070*** (.025)	−.070*** (.025)	−.077*** (.020)
Ethnic ties	.672*** (.186)	.665*** (.191)	.704*** (.192)	1.268*** (.317)
Distance	−.513*** (.084)	−.525*** (.086)	−.525*** (.087)	−.467*** (.125)
Cold War	.575** (.267)	.577** (.270)	.561** (.269)	.592** (.238)
Value oil reserves	.026*** (.008)	.027*** (.008)	.023*** (.009)	.061*** (.020)
Value balance of trade	−.038*** (.014)	−.036** (.014)	−.020 (.017)	
HHI		269.465** (124.826)	263.873** (124.408)	
Value reserves × balance Trade			−.002** (0.001)	
Value bilateral oil imports				.054*** (0.017)
Observations	31,951	31,951	31,951	7,291

Note: Robust standard errors are given in parentheses clustered by dyad. HHI = Herfindahl–Hirschman Index.
*$p < .10$. **$p < .05$. ***$p < .01$.

can alter the balance of power in favor of the supported side. This should increase the prospect for the victory of the supported side and shorten war duration. Previous interventions in the same civil war have a positive effect, while the number of years since the previous military intervention for the same dyad decreases the likelihood of a renewed interest in the conflict. Ethnic ties increase the likelihood of external involvement, in line with the claims that groups intervene in support of their kin. The expectation that interventions by neighboring states should be more likely, given the risk of conflict spillover, is confirmed by the negative sign of the log of distance. Finally, interventions seem more likely during the Cold War and the global competition between the superpowers.

Our main contribution is to identify economic incentives driving the decision to intervene. Civil wars in oil-producing countries have ramifications far beyond a

nation's borders and can quickly create turmoil on oil markets. Heightened tensions can prompt an exodus of oil companies from the conflict country, while oil supply fears may affect oil prices and the oil industry. Table 1 provides a direct test of Proposition 1, stating that TPIs are more likely the higher the oil endowments of a country at war. We focus on stock variables, that is, oil reserves, oil endowments, the amount of new oil discoveries, and the number of wildcats. With the exception of the amount of recent oil discoveries (model C), all the indicators have significant effects on the likelihood of external intervention in the expected direction. This is consistent with our claim that the profitability of the export industry is a strong factor determining the decision to interfere in a civil war. Although flow variables from the conflict states such as oil exports used in previous studies are likely to be endogenous to intervention, our stock variables here are unlikely to suffer from such problems. Unlike, for example Koga, using a binary variable for crude oil and/or gas production in the conflict state from PETRODATA (Lujala, Rod, and Thieme 2007), we find clear evidence that countries with a potential for oil production are more likely to be targeted by foreign intervention.

Yet, whether an oil-rich country is going to experience TPIs depends on the value of its reserves, which is given by the product of the quantity of its endowments and the world oil prices. Given the notable fluctuations in oil prices, the incentives to intervene are shaped by the value of a country's reserves rather than the quantity. Table 2 replaces our stock variables in thousand million barrels with its value (i.e., quantity $\times$ price in constant 1990 US$). The geoeconomic salience of an oil-rich country primarily relates to the value of its wealth, which is time varying, given the volatility of oil prices. As we can see, both the log of the value of oil reserves (model A) and the log of the value of its endowments (model B), positively affect the choices of third parties and are significant at conventional levels. The value of new oil discoveries (model C) fails to attain statistical significance, even though it has the expected sign, while the number of wildcats "weighted" by oil price is again positive and significant.

Our model also sheds light on the role played by the demand for oil in the decision to intervene and on the role of the competition in the sector. As previously mentioned, in Tables 3 and 4, we use the balance of trade in oil of each potential intervener, reflecting the third party's appetite for energy. Table 3 uses quantities while Table 4 replicates Table 3 using values (quantities $\times$ price). A negative value indicates that a country is a net importer while positive values pick up trade surpluses in oil. Since the balance could be negative (i.e., for net importers), we express the figures in billions to scale them down rather than taking the log. Over the last decades, many countries like Indonesia became net importers after having been net exporters for a long period, while new discoveries have seen other countries change in the opposite direction, like the United Kingdom between 1980 and 2004.

We start with column A, where we test proposition 3. The net demand for oil is negative and significant, thus indicating that an increasing need for oil in a country is associated with higher odds of involvement in civil conflicts. Intuitively, net

importers are more likely to be affected by conflict and instability, while net exporters may even benefit from prolonged periods of price fluctuations. In column B, we consider Proposition 2, which establishes that an intervention is more likely, the more oligopolistic the market for oil. The underlying intuition is that the disruption brought by the conflict to the oil industry depends on the number of oil-exporting countries and their relative share in the market. The results for the HHI of market concentration are consistent with our theoretical expectations. High HHIs signal low levels of competition within the oil industry and capture the importance of stabilizing a region to prevent or reduce shocks to the market. Accordingly, the coefficient is positive and statistically significant.

Model C replicates model B but includes an interaction term by multiplying the amount of reserves in the country at war and the balance of trade in oil in the intervening country. This allows for the effects of oil dependence for a third party to vary conditional on the reserves in the conflict state. The balance of trade still affects the likelihood of intervention, negatively and significantly, but the effect now depends on the amount of reserves in the country at war.

Finally, model D includes a robustness check. If our theory is correct, then intuitively the quantity of bilateral imports of oil from the conflict state to the potential interveners should also affect the likelihood of intervention. There is a notable decrease in the number of observations due to missing data on bilateral trade. Yet, these results indicate that a dependence on oil from the conflict country increases the willingness of a third-party state to intervene when its supplier is embroiled in a civil war. Note, however, that the coefficient of bilateral oil import is most certainly contaminated by two sources of endogeneity, namely, omitted variables bias and reverse causality. The first is a consequence of possible unobserved codeterminants of intervention and trade not included in the model. The second may arise from causality running both ways, that is, the intervention may boost bilateral imports. As such, this result must be interpreted with caution. Finally, Table 4 mimics Table 3 but uses the value of oil trade and reserves by multiplying stock and flow variables by oil prices. As we can see, the results are almost identical, but the coefficients are overall smaller as the multiplied terms have higher values. The impact of oil is larger than many of the factors stressed in other research on interventions, such as pre–/post–Cold War or ethnic ties.

Beyond statistical significance, Figure 2 illustrates the implied substantive effects of our results for model A in Table 4, across differences in the demand and the supply concerns. The shaded colors indicate how the probability of intervention for a modal dyad varies according to combinations of the value of reserves (supply side) and the balance of trade in oil (demand side). Both axes range from the minimum to the maximum values. Higher reserves in the conflict country make interventions more likely, while negative values of the balance of trade for the interveners (i.e., higher net imports) also make interventions more likely. Although the absolute probabilities are small as interventions are rare overall, the likelihood of intervention increases by a factor of about 100 from the low-likelihood to a high-likelihood

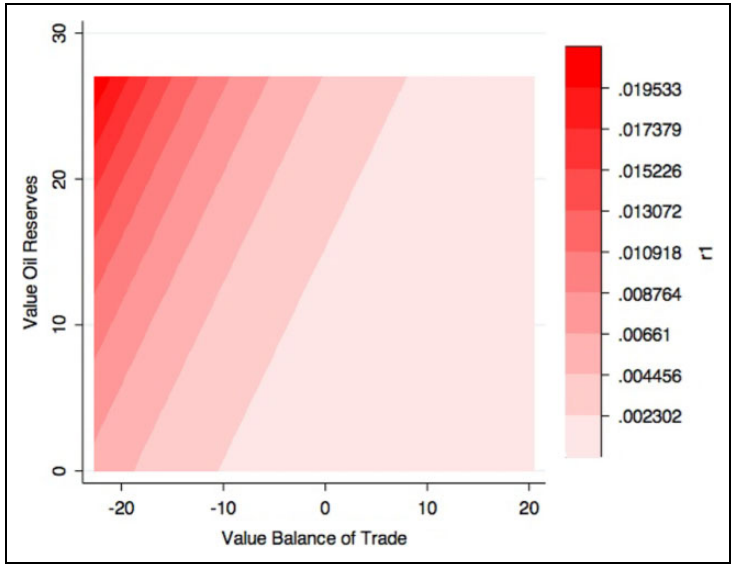

Figure 2. Marginal impact of combinations of oil reserves (value) and the balance of trade in oil (value) on the likelihood of intervention.

scenario. As such, the implied impact of oil in our model is also substantively important, consistent with our theoretical arguments, and of a magnitude similar to the effects of other features highlighted as important for intervention, such as ethnic kin.

We provide some examples of interventions and noninterventions to illustrate the implications of our findings. The United States for most of the period studied here provides an example at the high end of the oil dependence spectrum (i.e., high reserves, high demand for oil). Consistent with this, we see recurrent US involvements in the civil wars and internal affairs of Angola from 1975 until the end of the Cold War. The United States was the country with the highest demand for oil during this period, and it was known from the 1970s that Angola had oil reserves. Oil in Angola was first discovered in 1955, and many US corporations, like Chevron, have been operating in the oil-rich Cabinda region for more than 50 years. The United States has also intervened in a number of other countries with proven large oil reserves, such as in Guatemala, Indonesia, and the Philippines over the period covered by our data set (1945–1999).

Likewise, the United Kingdom intervened militarily in the Nigerian civil war, also known as the Biafran War, between 1967 and 1970. During this period, the United Kingdom was one of the largest net oil importers in the world, as the North Sea oil production only started in 1975; the country had also a direct interest in the stability of the region due to the presence of BP in the oil-rich eastern region. It may

seem tempting to attribute UK intervention in Nigeria to ties to its former colony. However, the United Kingdom did not intervene in civil wars in other former colonies, which did not have known oil reserves, such as in Sierra Leone and in Rhodesia (later Zimbabwe).

The history of military interventions of the Union of Soviet Socialist Republics (and later the Russian Federation) is also consistent with the predictions implied by our oil-centered motivations for TPIs by oil-poor countries. Two notable military interventions in oil-rich countries took place in periods where the oil-production capacity of the Union of Soviet Socialist Republics was at its infancy, that is, Indonesia in 1958 and Nigeria (Biafran War) in 1967 to 1968. The 1973 oil crisis encouraged further Soviet intervention in oil-rich Iraq, despite the fact that USSR exports were growing. Interestingly, subsequent Russian military interventions have mostly been unrelated to the presence of oil, in line with the Russian Federation gradually becoming a major oil (and gas) exporter.

At the low end of the oil dependence spectrum, we have several examples of nonintervention. Among the top net oil exporters in the period considered by our study, we have the Gulf Arab States such as Bahrain, Omar, Qatar, Saudi Arabia, and the United Arab Emirates. Over the period from 1945 to 1999, Saudi Arabia has just intervened once, in 1962, in neighboring Yemen, which did not have any known oil reserves at the time and started production only in 1985. All the other Arab states of the Persian Gulf have no history of external military interventions, although they have very high military spending and arguably capable military forces. Other potential regional powers and major oil-producing countries such as Indonesia and Mexico have likewise always refrained from intervening in civil wars.

We stress that our argument here is about interventions in ongoing civil wars rather than interstate aggression or wars against other states. However, this aside, given their salience, one may wonder whether the United States led attacks on an oil-rich country in the first Persian Gulf War (to reverse the Iraqi invasion of Kuwait) or the 2003 invasion of Iraq contradict our claims, given that these invasions arguably generated significant disruption to oil markets. We do not claim that our theory can be directly extended to decisions to use force against other countries, but we also do not think that these examples undermine the logic of our theory. In particular, the United States arguably considered the long-term threat to stability by an ascendant Iraq a greater threat than the immediate impact of the intervention. Although it is difficult to evaluate the counterfactual question of what oil prices in 1991 would have been without a US intervention to liberate Kuwait, we know that oil prices spiked in 1990 after the Iraqi invasion but fell after the 1991 US invasion. Moreover, although Iraqi exports fell after the 2003 invasion, there were major disagreements about the consequences for oil prices prior to the invasion, and many experts argued that oil prices were likely to fall (for a review of the discussion of effects on prices prior to the invasion, see Leigh, Wolfers, and Zitzewitz 2003). Delineating plausible scenarios for consequences in the absence of intervention will depend on a number of contentious assumptions. Likewise, we may need to wait for

further documentation to become publicly available in order to assess the beliefs held by decision makers before the intervention. We do not attempt to answer these issues conclusively here, but reiterate that we see little evidence to suggest that the US aggression against Iraq fundamentally undermines the logic of our arguments about how oil shapes incentives for intervention in civil wars.

Conclusion

The rhetoric or the professed goals for intervening in civil wars are often controversial, and there may be a variety of other factors motivating intervention. As of the time of writing (June 2014), many observers have drawn attention to how we have seen international intervention in the civil war in Libya but not in the Syrian conflict. The proverbial "thirst for oil" is often offered as a near self-evident explanation, echoing previous claims about the alleged "true" motivation of the 2003 US invasion of Iraq.[15] We certainly acknowledge that such claims are often incomplete and simplistic. However, challenging dubious claims is best done by more serious analysis, and the role of economic incentives in intervention deserves more scholarly attention.

Our formal model presented here highlights the relationship of potential third-party interveners to the conflict country and emphasizes variation in their costs of ongoing conflict and benefits of intervention. We integrate third parties into a conventional model of civil conflict between a government and opposition forces, where conflict has implications for oil production and exports and in turn prices for oil importers. We consider a world composed of oil-producing and non-oil-producing countries and identify a set of parameters that will influence incentives for third parties to intervene. Whereas existing research has largely disregarded the role of economic factors and oil, we demonstrate that both supply and demand factors tend to increase the incentives for external military involvement, and we find strong empirical support for our claim. In this article, we have endowed potential third parties with the unique tool of military intervention to end ongoing civil wars. A very interesting related question to explore in further research is the incentives of oil-rich third parties to supply the rebels with logistic support, to interfere in dispute-resolution initiatives, and to generally contribute to the prolongation of a civil war to maintain and benefit from high oil prices in the world markets.

Our article most directly helps to shed light on economic and strategic conditions that influence the likelihood of TPI, and we note that oil shocks are often to a large extent routed in security-related political developments and events. Beyond the immediate implications for intervention in civil wars, our model and results also help provide a deeper understanding of other events and trends in world politics. In particular, our approach can partially account for foreign policies toward the oil-rich countries in the Middle East, where developed economies dependent on a steady supply of crude oil have favored a strong emphasis on stability at any cost. Beyond Western military involvement in response to conflict, such as the intervention to roll

back the 1990 Iraqi invasion of Kuwait, the United States also provides significant military aid and maintains troops in Persian Gulf oil producers, and the United States has a history of supporting conservative autocratic states in spite of the emphasis on democratic reform elsewhere. This military and political support is at least in part motivated to ensure that countries on the Arabian Peninsula maintain crude oil prices within a target range. The enduring record of geopolitical instability in oil-producing regions and the likely increase in the global demand for oil implies that economic incentives are likely to figure prominently in whether we see interventions in civil war. However, with a less energy-dependent United States and a more energy-dependent China, the specific states with the greatest incentives to intervene are likely to change notably in the future.

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Notes

1. Notable exceptions that consider economic incentives for intervention include Aydin (2008, 2012), who examines the incentives to protect trading partners in interstate disputes and civil wars, and Koga (2011), who looks at how lootable natural resources such as secondary diamonds increase the likelihood of third-party intervention (TPI) in civil war by autocracies.
2. The claim that oil invites civil conflict has been challenged by some researchers. Fearon (2005) argues that the results arise from omitted variables, such as the weakness of the economy. Brunnschweiler and Bulte (2009) argue that natural resource abundance increases the chances of peace via an income effect. Cotet and Tsui (2013) raise doubts over whether the relationship between oil reserves and civil conflict is robust to country-fixed effects. Last, De Luca et al. (2014) show that valuable mineral resources may incentivize conflicting parties to protect and secure the area, thus displacing conflict.
3. There is a large literature on the problem of collective action problem in the provision of public goods, which has also been applied to multilateral interventions, see, for example, Olson and Zeckhauser (1966) and Berkok (2006). In our proposed models, interveners generate a positive externality on other oil-consuming countries, but we focus on the individual third-party intervener to shed light on the private incentives to intervene. Allowing for multiple interveners would yield free-riding concerns but would not add further insights into the initial or individual intervener motivations.

4. This has clear similarities to extended deterrence theory in international relations where a defender extends support to defend a third party from an aggression (see Huth [1988] for a more thorough description), hoping to eventually secure a peaceful situation.
5. Our model resembles the recent works of Acemoglu, Davide, and Andrea (2010a, 2010b) on the role of the military in deterring civil wars and international threats, who similarly emphasize how third-party interveners are rewarded in exchange for deterring threats. Our models differ in at least two respects. Acemoglu, Davide, and Andrea (2010a, 2010b) propose a mechanism where a military can depose the ruling elites through a coup, which has no comparable role in our setting. We also consider the possibility that the government can deploy its own army instead of calling on a third-party intervener, while no comparable option exists in Acemoglu, Davide, and Andrea (2010a, 2010b).
6. We impose that there are more than two oil-producing countries to avoid the disruption of oil production in one country to give rise to a monopoly whereby oil producers would cease interacting strategically to each other's production decisions.
7. We here normalize the price of good z to unity, but we could also conceive of z as a basket of goods with price normalized to unity.
8. The game is static and this should be interpreted as the short-run benefits of controlling the country. We disregard dynamic incentives and costs in this article.
9. We assume throughout that $w_i(.) > \alpha/\beta$ to ensure a positive consumption of both goods at equilibrium.
10. We consider the oil market as an oligopoly, as most models and analyses of energy systems focus on the oligopolistic structure of the oil market (see, e.g., Griffin 1985; Alhajji and Huettner 2000; Salo and Tahvonen 2001; Kaufmann et al. 2004; Hartwick and Brolley 2008; Mileva and Siegfried 2012). The view that Organization of the Petroleum Exporting Countries has a significant impact on production levels of member states has been recently challenged by Colgan (2013a), but this does not change the oligopolistic nature of the oil market (i.e., the market is still dominated by a small number of producers).
11. This is a widely accepted assumption for a given extraction technology (Krautkraemer 1998).
12. The total number of observations is equal to the number of civil conflicts $\times$ the number of years during which a given civil conflict persists $\times$ the number of potential intervener states in a given year.
13. Oil endowment includes undiscovered resources and is mostly determined by geography, while oil reserves depend on previous exploration effort and the rate of extraction (see Cotet and Tsui 2013).
14. If, for example, there were only one oil-exporting country, it would hold 100 percent of the market shares, and an HHI of $100^2 = 10{,}000$.
15. See, for example, Moisés Naím, "Why Libya, But Not Syria? Five Answers," *The Huffington Post*, May 18, 2011, http://www.huffingtonpost.com/moises-naim/why-libya-but-not-syria-f_b_863493.html (accessed June 14, 2014).

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