The Spoils of Nature: When International Oil Pricing Matters

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Abstract Existing research, particularly Lujala (2010), has established that the presence and production of hydrocarbons in a conflict zone influence both conflict duration and onset. This literature, however, fails to consider how international oil prices may condition this relationship, despite many of the causal mechanisms relying on hydrocarbons as a source of funding for rebel groups. We argue that when oil prices are high, the conflict-lengthening effect of hydrocarbons will be greater and hydrocarbon production will make conflict onset even more likely. We find in our extension of Lujala (2010), however, that hydrocarbons increase conflict duration less when oil prices are high and that oil prices have no significant effect on the relationship between hydrocarbons and conflict onset. These results greatly improve our understanding of the relationship between natural resources and conflict and present numerous avenues for future research.

Introduction

The puzzle identified in this analysis revolves around the relationship between the presence of hydrocarbons in a conflict zone and the international prices of these commodities, specifically oil. We directly build upon Lujala (2010), which determines that the location of natural resources greatly influences conflict onset and duration. The article establishes that the mere presence of hydrocarbons can significantly increase the duration and onset of conflicts, as these resources provide a lucrative source of revenue and motivation for rebel groups, thereby sustaining and prolonging their operations (Lujala 2010). This foundational understanding sets the stage for exploring how fluctuations in international commodity prices, particularly oil, further modulate this dynamic.

The exploration of how fluctuations in international commodity prices, especially for resources like oil and gemstones, impact the dynamics of armed conflicts, addresses a critical gap in the existing literature. While numerous studies have convincingly demonstrated the influence of natural resource wealth on the emergence and sustainability of rebel groups, they have largely concentrated on the static aspects of resource presence and geographical location without integrating the dynamic factor of global

. For the online appendix and other supplementary information for this article, please use this link: https://tinyurl.com/39jkkxvk

market prices. This oversight leaves a significant gap in our understanding of conflict economics, particularly in how the changing value of resources on the international market can alter the incentives for armed groups and potentially the course of conflicts themselves.

Firstly, the economic incentives for rebel groups to engage in or prolong conflicts are substantially influenced by the global prices of commodities like oil and gemstones. High commodity prices can increase the potential revenue from controlling resource-rich areas, thereby intensifying competition among conflicting parties and possibly prolonging conflicts. This dynamic suggests that the profitability of resource exploitation for rebel groups is not constant but fluctuates with global market conditions, which can either escalate or de-escalate conflict situations.

Secondly, the presence of easily extractable resources such as gemstones has been shown to affect rebel movements directly by providing them with financial means to sustain their operations. There is also some evidence that less easily extractable resources like oil may have a similar effect. However, integrating the variable of international commodity prices into this analysis could further refine our understanding of when and why these resources become significant drivers of conflict. For instance, a surge in gemstone or oil prices could make previously marginal conflicts financially viable for rebel groups, leading to an escalation in violence or the prolongation of existing conflicts.

Moreover, the distinction between onshore and offshore oil production and its impact on conflict onset and duration highlights the importance of resource location. Integrating international oil prices into this analysis could provide insights into how the value of these resources interacts with their geographical characteristics to influence conflict dynamics. For example, high oil prices might exacerbate the risk of conflict onset in regions with onshore production due to the higher visibility and accessibility of these resources to rebel groups.

Finally, the methodological focus on the spatial and temporal overlap of resources and conflict underscores the complexity of the relationship between natural resources and armed conflicts. By considering international commodity prices, researchers can add a critical temporal dimension to this analysis, capturing how shifts in the global economy can influence local conflict dynamics over time.

Expanding the analysis of armed conflicts to include the impact of international commodity prices on the economic incentives provided by natural resources like oil and gemstones offers a more dynamic and nuanced understanding of conflict economics. This approach not only builds on existing research that has established the significance of resource presence and location but also opens new avenues for exploring how global economic factors interact with local conditions to influence the course of armed conflicts.

In this paper we plan on adding a new variable to the existing models presented by Lujala (2010): international commodity prices of oil. The interaction between this new variable and hydrocarbon reserves is significant. The presence of hydrocarbons in a conflict zone has been shown to significantly increase the duration of conflicts

because hydrocarbons provide a lucrative source of present and future revenue for rebel groups, which can sustain and prolong their operations (Lujala 2010). Therefore, the international prices of oil can significantly influence the incentives for armed groups to capture and control oil-producing areas. This higher revenue can also intensify competition over control of these resources. This could lead to an increase in the duration. The interaction between hydrocarbon reserves and international commodity prices is predicted to show that the effect of hydrocarbon presence on conflict dynamics is conditional on the international prices of these commodities. Specifically, when international prices are high, the impact of hydrocarbons on prolonging conflict is expected to be stronger. Conversely, when prices are low, the financial incentive to control hydrocarbon production areas might diminish, potentially leading to shorter conflicts.

We also expect the interaction between oil production and oil prices to have a significant impact on conflict onset. Lujala (2010) argues that oil production can serve as a source of both revenue and grievance, leading to conflict onset. Financial gains from resource exploitation can make a rebellion viable, while grievances from the uneven allocation of resource rents can create the motivation to rebel (Lujala 2010). Higher oil prices exacerbate both of these dynamics, leading oil production to increase the chance of conflict even more when oil prices are high.

After replicating the results found in Lujala (2010), we extend upon her analysis to investigate the influence of international oil prices. Following her models, we analyze the impact of the interaction between hydrocarbon reserves in the conflict zone and oil prices on conflict duration. Next, we analyze the impact of the interaction between oil production on a national level and oil prices on conflict onset. These models allow for the examination of how the presence and production of hydrocarbons and their international prices influence conflict initiation and duration. Data for the new variable is identified and collected through the World Bank's commodity price data.

Our results indicate that international oil prices do overall increase conflict duration in accordance with our argument. However, hydrocarbon reserves increase conflict duration less when oil prices are high and increase conflict duration more when oil prices are low, contrary to our expectations. In contrast, we do not find that oil prices have any significant effect on the onset of conflict, either independently or through their interaction with oil production. This finding also contradicts our expectations. Taken together, these findings indicate that although rising oil prices are insufficient to spark a conflict, they can play a significant role in conditioning the effect of hydrocarbon reserves on conflict duration.

Theory

The theoretical implications of integrating international commodity prices into the analysis are profound, addressing several empirical gaps and potential shortcomings in the current understanding of resource-driven conflicts. The inclusion of international commodity prices introduces a dynamic component to the economic incentives for engaging in or prolonging conflicts. Traditional models, which focus on the presence

and production of resources, often assume static economic values for these resources. However, by incorporating fluctuating commodity prices, the model acknowledges that the economic incentives for rebel groups and governments are not constant but vary in response to global market conditions (Sambanis 2004). This dynamic perspective can explain variations in conflict duration and onset that static models cannot, highlighting the need for a more nuanced understanding of economic incentives in conflict settings.

The value of resources, determined by international commodity prices, directly impacts the viability of conflicts. High commodity prices can make previously marginal conflicts financially viable for rebel groups by increasing the potential revenue from controlling resource-rich areas (Sambanis 2004). This theoretical extension suggests that the onset and duration of conflicts are not only influenced by the presence of resources but also by their global market value, offering a more comprehensive understanding of the economic underpinnings of conflicts.

The original analysis posits that onshore oil production increases the risk of conflict onset due to its accessibility to rebel groups, in contrast to offshore production which, due to its inaccessibility, does not have the same effect (Lujala 2010). Integrating international commodity prices into this analysis could further refine the understanding of how resource wealth affects state capacity and, consequently, conflict dynamics. High oil prices could bolster state revenues from offshore production, potentially enhancing state capacity and altering the relationship between state strength and conflict risk (Colgan 2014). This suggests a more complex interaction between resource wealth, state capacity, and conflict than previously acknowledged.

By considering international commodity prices, the analysis gains both a temporal and a spatial dimension, allowing for a more detailed examination of when and where conflicts are likely to occur or persist. This addresses a significant empirical gap in the current literature, which often treats resource wealth as a static factor. The fluctuating nature of commodity prices means that the economic attractiveness of resource-rich regions can change over time, influencing the strategic decisions of rebel groups and governments alike. This theoretical extension underscores the importance of timing and location in understanding resource-driven conflicts (Colgan 2014).

The omission of international commodity prices from the analysis of resource-driven conflicts represents a significant empirical gap. By not accounting for the fluctuating value of resources, existing models may suffer from omitted variable bias. This oversight limits the explanatory power of these models and may lead to inaccurate predictions about the onset and duration of conflicts. The absence of international commodity prices in conflict analysis models not only risks overstating the role of resource presence but also neglects the potential for these prices to act as a catalyst for conflict (Colgan 2014). For instance, a spike in oil prices could suddenly render a previously low-value zone economically viable, thereby incentivizing armed groups to seize control. This oversight can significantly distort the perceived relationship between resource wealth and conflict, suggesting that models without this variable may not fully capture the economic motivations behind armed conflicts. The failure to account for these dynamic economic incentives can lead to a misunderstanding of

the conditions under which conflicts are likely to emerge or escalate.

The focus on static resource factors (presence and production) without considering commodity prices leaves room for alternative explanations of conflict dynamics. For instance, a surge in conflict might coincide with rising global prices for certain commodities, suggesting that economic opportunities, rather than merely the presence of resources, drive conflict dynamics (Carter et al., 2011). Ignoring these economic fluctuations limits the understanding of the complex motivations behind armed conflicts. Not including the role of international commodity prices leaves significant room for alternative explanations of conflict dynamics that are more economically grounded (Carter et al., 2011). For example, the economic shock theory suggests that sudden changes in a country's economic condition, such as those caused by fluctuating commodity prices, can lead to conflict (Bazzi& Blattman, 2014). This theory posits that economic instability, rather than the mere presence of valuable resources, may be a more direct cause of conflict (Bazzi& Blattman, 2014). By not considering commodity prices, existing analyses may overlook these broader economic mechanisms that can both precipitate and perpetuate conflicts, limiting the explanatory power of resource-centric models.

Additional explanations to the relationship between natural resources and conflict duration could stem from political and social dimensions that are not solely tied to the economic incentives provided by resources like oil and gemstones. For instance, the presence of natural resources might exacerbate existing political grievances or ethnic divisions, serving as a focal point around which opposition groups mobilize (Asal et al., 2016). In this view, resources do not directly finance conflict but instead act as a catalyst for mobilization by highlighting inequalities in wealth distribution or by providing a tangible objective for separatist movements. This perspective suggests that the underlying political and social structures, along with how resources are governed and the inclusivity of political institutions, play a critical role in determining whether resources will fuel conflict or contribute to peace (Asal et al., 2016).

Moreover, the environmental degradation and displacement caused by resource extraction could serve as another alternative explanation for the prolongation of conflicts (Humphreys 2005). The environmental impact of extracting resources like oil and gemstones can lead to the displacement of communities, loss of livelihoods, and degradation of essential natural resources, such as water (Humphreys 2005). These consequences can fuel resentment and resistance among local populations, potentially leading to or exacerbating conflict. In this scenario, the conflict is not directly financed by the resources themselves but is instead a response to the negative externalities associated with resource extraction (Humphreys 2005). This explanation shifts the focus from the economic value of the resources to the environmental and social costs of their extraction, suggesting a more complex relationship between natural resources and conflict dynamics.

Building upon this literature and the argument and findings of Lujala (2010), we present arguments on the impact of international oil prices on both conflict duration and onset. We argue that hydrocarbon reserves will increase conflict duration even

more when oil prices are high. These higher prices lead to higher financial gains from resource exploitation, allowing rebels to sustain conflict for longer. Higher prices also increase the potential future payoff of controlling the hydrocarbon reserves, making rebels even more motivated to continue fighting for a chance of that control. Conversely, low oil prices limit present and potential future financial gains, making rebels less capable and willing to sustain conflict. We also argue that oil production will increase the likelihood of conflict onset even more when oil prices are high. Higher revenues from resources could allow a rebel group to begin a conflict that they did not have the finances to begin before. Additionally, high oil prices may make the uneven distribution of resource rents more severe and visible, exacerbating grievances and potentially sparking conflict (Lujala 2010).

Lujala's (2010) empirical scope, primarily centered on resource presence and production, may not fully capture the multifaceted relationship between natural resources and conflicts. Limiting the scope of empirical analysis to static measures of resource wealth fails to capture the full complexity of the relationship between natural resources and conflicts. This narrow focus may overlook how changes in the global economic environment, reflected through commodity prices, can alter the strategic calculations of both state and non-state actors. For instance, a comprehensive analysis that includes commodity prices could reveal patterns of conflict escalation or de-escalation in response to global economic trends, offering insights into the timing and location of conflicts that static models cannot provide. Expanding the empirical scope to include these variables would not only enrich the theoretical understanding of resource-driven conflicts but also enhance the predictive accuracy of conflict models.

Replication

We plan to replicate Model 1 from Table II and Model 10 from Table III from Lujala's analysis (2010). The data utilized in both models is yearly and spans from 1946 to 2003. The author used Model 1 to investigate the impact of the presence of resources in a conflict area on conflict duration. Resource presence is measured with the independent variables of gemstones in the conflict area and hydrocarbon reserves in the conflict area. The control variables of mountainous terrain, forest cover, and rainy season in the conflict area are also included. These controls are included to address the potential ability of rough terrain to lengthen conflict by providing rebels with places to hide or forcing breaks in the fighting. The original analysis uses a bivariate Weibull survival model (Lujala 2010). However, due to issues with the availability of the replication data, we were unable to create the survival object necessary to run the model. Instead, we utilize a negative binomial model to investigate the same variables.

Lujala used Model 10 to investigate the dependent variable of conflict onset. It analyzes the independent variables of secondary diamonds and oil production on the country level with a logistic regression. Population, GDP per capita, democracy score, democracy score squared, mountainous terrain, linguistic fractionalization, instability, and ongoing conflict are all included as controls. The analysis also controlled for time since the last conflict onset and cubic splines, however they were found to be

insignificant and thus left out of the results table (Lujala 2010). Given this omission and issues replicating the cubic spline controls, we omit these controls from our replication. We also replicate a version of Figure 2, which presents survival estimates for conflict duration across several variables, which can be seen in the appendix (Lujala 2010).

Due to the difference in the model used, our Model 1 replication produced slightly different findings than the original analysis. Although most variables produce slightly different coefficients, most remain consistent in their positive or negative relationship and significance. The largest differences were the controls for forest cover and rainy season. Forest cover is not significant in the original analysis, but significant and negative in our replication, while rainy season was significant in the original analysis but lost significance in our replication. Our Model 2, the replication of Model 10 in the original analysis, produced highly similar results to the original analysis. Nearly all variables indicated the same significance and direction of relationship. The only significant difference was that the control for GDP per capita was insignificant in the original analysis but gained significance in our replication. This may be because the controls we omitted absorbed the significance of GDP in the original analysis, even though they failed to reach significance themselves.[1]

Extension

To extend the model in a meaningful way, considering the relationship between natural resources and conflict, integrating international commodity prices as a new variable could offer significant insights. The fluctuation in international commodity prices can have a profound impact on the economic incentives for controlling resources, which in turn could affect the onset, duration, and intensity of conflicts (Colgan 2014). For instance, a surge in the prices of oil or gemstones might increase the revenue potential from these resources, potentially exacerbating conflicts or even reigniting dormant tensions in resource-rich areas (Colgan 2014). Conversely, a decline in commodity prices could reduce the financial incentives for conflict, possibly leading to de-escalation or resolution of disputes. As such, we argue that oil presence will lengthen conflict even more when oil prices are high. We also argue that oil production will be even more likely to lead to conflict onset when oil prices are high.

Adding international commodity prices requires collecting and analyzing global price data for the specific resources in question (e.g., oil, diamonds, gold) and correlating these prices with conflict data over the same period. This approach would allow for a dynamic analysis that considers how external economic factors influence internal conflict dynamics. For example, using a dataset that includes monthly or yearly average prices for key commodities and matching this with conflict onset and duration data could provide a more nuanced understanding of the economic

1. See Figure 1 for results.

	Dependent variable:
	Duration
Mountainous terrain	0.052***
	(0.013)
Forest cover	-0.046***
	(0.015)
Rainy season	0.137*
	(0.074)
All gemstones	0.369***
	(0.066)
Hydrocarbon reserves	0.367***
	(0.058)
Constant	7.869***
	(0.083)
Observations	1,484
Log Likelihood	-13,728.680
theta	0.813*** (0.026)
Akaike Inf. Crit.	27,469.360
Note:	*p<0.1; **p<0.05; ***p<0.01

	Dependent variable:
	Onset
GDP per capita	-0.306***
	(0.099)
Population	0.140**
	(0.059)
Linguistic fractionalization	1.156***
	(0.295)
Polity score	0.013
	(0.012)
Polity squared	-0.008***
	(0.003)
Instability	0.141
	(0.189)
Mountainous terrain	0.123***
	(0.042)
Secondary diamonds	0.386**
	(0.174)
Oil production	0.407**
	(0.180)
Ongoing war	0.116
	(0.177)
Constant	-4.726***
	(0.564)
Observations	6,322
Log Likelihood	-827.494
Akaike Inf. Crit.	1,676.989
Note:	*p<0.1; **p<0.05; ***p<0.01

FIGURE 1. *Replication Results for Model 1 (left) and Model 2 (right)*

underpinnings of resource-related conflicts. This extension not only enriches the analysis by incorporating global economic trends but also aligns with the literature that emphasizes the economic dimensions of conflicts, particularly those fueled by natural resources.

Furthermore, to explore the direct impact of international commodity prices on conflict without the extensive need for new data collection, one could employ a random sample of existing conflict zones known for their resource wealth. This smaller sample size would make it feasible to collect detailed data on commodity prices and examine their specific impact on these selected conflicts. Such an approach would offer a focused insight into the price-conflict nexus, providing a preliminary yet potent analysis that could guide future large-scale research efforts. This methodological creativity not only addresses the theoretical importance of economic factors in conflict dynamics but also leverages available data in a practical, innovative manner.

However, for the new variable of international commodity prices, we chose to use data from the World Bank's commodity price data, a reputable financial market data provider (Commodity markets n.d.). This decision is grounded in the reliability, authority, and comprehensive coverage these sources offer. The World Bank is renowned for its comprehensive and authoritative economic data. Its data on commodity prices are widely used in academic research and policy analysis, ensuring that our study builds on a solid and credible foundation.

This database offers global coverage and consistent methodology in tracking commodity prices. This is crucial for our analysis, which requires standardized

data across different countries and time periods to accurately assess the impact of international commodity prices on conflict. The World Bank database is regularly updated and easily accessible to researchers. This ensures that our study can use the most current data available and be replicated or updated in the future by other researchers. The database provides prices for a wide range of commodities, including oil, diamonds, and other natural resources relevant to our study. Although we do not investigate each of these in this paper, this allows for future extension for a more nuanced analysis of how different commodities might influence conflict dynamics in various contexts.

Using data from this source allows for compatibility with other economic indicators that might be included in related analyses, such as GDP per capita or growth rates, which are also available from the World Bank. This facilitates a more integrated approach to understanding the economic factors influencing conflict. By leveraging data from these established financial market data providers, our study aims to provide a robust and comprehensive analysis of how fluctuations in international commodity prices impact conflict. This approach not only enhances the credibility of our findings but also aligns with the broader academic and policy discourse on the economic dimensions of conflict.

We specifically utilize international commodity oil price data from the World Bank Commodity Price Data, otherwise known as The Pink Sheet (Commodity markets n.d.). We utilize the average crude oil price per barrel measure, which is measured in nominal US dollars. The data is annual, maximizing compatibility with the data used by Lujala in the original analysis. Given the potential for high volatility in commodity prices, we adjust the price data to reduce the impact of extreme values on the analysis using a logarithmic transformation. We also normalize the data to account for any possible trends over time.

Although Lujala's analysis spans from 1946 to 2003, the World Bank data only begins in 1960. As such, we limit the years included in our extension analyses to 1960 to 2003. In order to account for the possibility that any changes seen in our extension may be due to the different time frame rather than the addition of oil prices, we conduct another version of our replication which only includes only data from 1960 to 2003 but is otherwise identical to the replication presented in the last section of this paper. This time limited replication, the results of which can be seen in the appendix, did not produce results that were significantly different from our initial replication, indicating that our limited time span does not significantly impact this analysis.

To conduct our analyses we use similar models to our initial replication. When investigating the dependent variable of conflict duration we utilize a negative binomial model. Based on our replication of Lujala's Model 1, we first analyze the independent variable of hydrocarbon reserves in the conflict zone and add oil price as a control in addition to those used in the original analysis (2010). This model, named Model 3, allows us to observe the general effect of oil prices on conflict duration. Second, in Model 4, we add an interaction term between hydrocarbon presence and oil prices to the initial model in order to test our theory more precisely. Our controls, which

apply to both models, are mountainous terrain, forest cover and rainy season. The presence of all gemstones in the conflict zone is also included as a control as it is an independent variable in Lujala's original analysis (2010).

We follow a similar method in our analysis of conflict onset. Based on our replication of Lujala's Model 10, in our Model 5 we first analyze the independent variable of oil production using a logistic regression, including oil prices in addition to the same controls from our replication (2010). Second, in Model 6, we add an interaction term between oil production and oil prices to the same model. The controls used in both models are GDP per capita, population, Polity Score, Polity Score squared, linguistic fractionalization, instability, mountainous terrain, and ongoing war. As with our analysis of conflict duration, we keep the variable of secondary diamond production in the model, although it functions as an additional control rather than an independent variable in our analysis.

After we ran the analysis with our extension, we found mixed support for our argument on conflict duration. In our first analysis of conflict duration, in which we simply added the variable of oil prices without an interaction, oil price was positive and significant. This indicates that oil price does indeed overall increase conflict duration, consistent with our argument. The inclusion of oil prices did not decrease the significance of any of the other included variables. In fact it increased the significance of the controls for forest cover, which was insignificant in Lujala's analysis but significant in our replication, and rainy season, which was significant in both Lujala's analysis and our replication, indicating that the inclusion of this variable improves the explanatory power of the model (2010). In our second analysis we tested our argument more precisely by including an interaction term between hydrocarbon presence and oil prices. This interaction was significant but negative, contradicting our expectations. Hydrocarbon presence is found to lead to a larger increase in conflict duration when oil prices are low, and lead to a smaller increase in conflict duration when oil prices are high. In other words, the positive effect of hydrocarbon presence in the conflict zone diminishes as oil prices rise.

This finding contradicts both our expectation that high oil prices will amplify the conflict-lengthening effect of hydrocarbon presence and an implication drawn by Lujala from the original analysis (2010). Lujala asserts that her findings suggest that if the future payoff is significant enough, rebels may be willing to continue to fight for longer for the prospect of eventually being able to exploit a given natural resource (2010). Our finding suggests that instead, rebel groups with hydrocarbon reserves in their conflict zones fight less lengthy conflicts when the potential payoff is high, compared to when it is lower. This may indicate either that higher oil prices strengthen the government or the rebels, allowing one to end the conflict more quickly than when prices are low. Higher oil prices may strengthen the government to the point that they are more likely to be able to win against the rebels, militarily or through a favorable settlement. The government receives more income when prices are high, which they can utilize to improve their military capabilities and thus increase the chance of achieving victory. Regardless of if the hydrocarbons are being produced,

higher oil prices could lead to greater motivation and resolve to maintain control of these reserves, also increasing the chance that the government will end the conflict in their favor.

However, higher prices may instead strengthen the rebels, rather than the government, to the point that they can achieve a quicker victory. Higher oil prices increase the possible gains for rebel groups exploiting these resources, allowing them to increase their military capacity and thus end the conflict more quickly. The increased revenue from exploitation may also incentivize rebel groups that were not receiving revenue from oil to begin looting it to gain these increased financial benefits. This lends credibility to Lujala's assertion that her original analysis could suggest that rebel exploitation of oil production through looting and extortion is a more significant source of funding than previously believed (2010).[2]

Regardless of hydrocarbon production, higher oil prices could increase the rebels' motivation and resolve to fight for control of reserves, given the higher potential payoff. Rather than lengthening the conflict as Lujala suggests and we expected, this higher resolve could make the rebels more able to quickly resolve their conflict with the government (2010). Higher prices could also lead to tangible benefits from increased recruitment. With higher oil prices, the rebels can credibly promise greater gains for their members upon victory, encouraging more people to join. Higher prices may also increase grievances among those suffering the impacts of resource extraction which could also motivate more people to join the group. Regardless of what mechanisms drive this finding, it is clear that hydrocarbons do not have a uniform effect on conflict duration, but rather are conditioned by oil prices.

We found even less support for our argument regarding the effect of oil prices on conflict onset. In our initial analysis with simply adding the oil price variable, prices were not found to be significant. The only significant change in the rest of the variables was that secondary diamond production lost significance. We were admittedly quite confused about this result. It is possible that oil prices explain variation in conflict onset better than secondary diamonds, yet oil prices also failed to achieve significance. There may be potential for issues with multicollinearity, but international oil prices should not be correlated with any of the controls used as they are all country level. Furthermore, secondary diamonds regained their significance when we included our interaction term. The interaction between oil production and oil prices in our second analysis also failed to reach significance. Otherwise, there were no significant changes in the findings compared to the original article. This demonstrates that despite our expectations, changes in oil prices do not have a sufficient impact on rebel group viability to spark a conflict.

Although unexpected, this finding can still be explained. Beginning a conflict is a very significant and costly decision which upends the status quo. Although oil prices can influence the capabilities of rebel groups already in a conflict, these regularly

2. See Figure 2 for duration results.

	Dependent variable:	
	Duration	
	Model 3	Model 4
Hydrocarbon reserves	0.299***	0.363***
	(0.060)	(0.062)
All gemstones	0.334***	0.366***
	(0.066)	(0.066)
Mountainous terrain	0.064***	0.064***
	(0.014)	(0.014)
Forest cover	-0.067***	-0.070***
	(0.016)	(0.016)
Rainy season	0.332***	0.340***
	(0.079)	(0.078)
Hydrocarbon reserves: oil price		-0.251***
		(0.070)
Oil price	0.254***	0.362***
	(0.034)	(0.044)
Constant	7.770***	7.728***
	(0.086)	(0.085)
Observations	1,342	1,342
Log Likelihood	-12,487.040	-12,480.820
theta	0.872*** (0.030)	0.878*** (0.030)
Akaike Inf. Crit.	24,988.080	24,977.630
Note:		*p<0.1; **p<0.05; ***p<0.01

FIGURE 2. *Duration extension results.*

fluctuating prices do not provide a consistent and strong enough impact to shift a rebellion from not being viable to viability. This finding somewhat undermines the argument that resource-related grievances can spark a conflict discussed by Lujala (2010). One would expect the grievances generated by facing the harms of natural resource extraction while not receiving any of the corresponding benefits to be more significant when those gains are higher due to higher oil prices, making the onset of a conflict more likely. However, these results suggest that either higher oil prices do not generate greater grievances or that these grievances are not sufficient to drive conflict onset. Overall, our findings indicate that although oil prices do not influence conflict onset, they do play a significant role in conditioning the effect of hydrocarbon reserves on conflict duration.[3]

Discussion and Conclusion

In this paper we presented the case for the addition of international oil prices to the analysis of the impact of resources on conflict duration and onset by Lujala (2010). This paper demonstrates that the omission of this variable has the potential to hide important influences of international economic conditions on the well-established relationship between natural resources and conflict. Emphasizing the existing literature and the

3. See Figure 3 for onset extension results.

	Dependent variable:	
	Onset	
	Model 5	Model 6
Oil production	0.377*	0.378*
	(0.197)	(0.197)
Secondary diamonds	0.304	0.304*
	(0.185)	(0.185)
GDP per capita	-0.263**	-0.260**
	(0.116)	(0.116)
Population	0.163***	0.163**
	(0.063)	(0.063)
Linguistic fractionalization	1.163***	1.168***
	(0.329)	(0.329)
Polity score	0.006	0.006
	(0.013)	(0.013)
Polity Squared	-0.009***	-0.009***
	(0.003)	(0.003)
Instability	0.215	0.216
	(0.200)	(0.200)
Mountainous terrain	0.114***	0.114***
	(0.044)	(0.044)
Ongoing war	0.112	0.115
	(0.188)	(0.188)
Oil production: oil price		-0.038
		(0.165)
Oil price	-0.035	-0.014
	(0.084)	(0.125)
Constant	-4.908***	-4.908***
	(0.626)	(0.626)
Observations	5,429	5,429
Log Likelihood	-720.876	-720.849
Akaike Inf. Crit.	1,465.751	1,467.699
Note:	*p<0.1; **p<0.05; ***p<0.01	

FIGURE 3. *Onset extension results.*

argument and findings of Lujala (2010), we argue that hydrocarbon reserves should increase conflict duration more when oil prices are high, as higher prices enhance both the current and possible future financial gains for rebel groups from extracting the reserves. We also argue that oil production should increase the likelihood of conflict onset even more when oil prices are high, as increased revenue and grievances from higher prices can shift a rebellion from not being viable to being viable.

In regards to conflict duration, we find mixed support for our argument. Although oil prices do significantly increase conflict duration when considered alone, their interaction with hydrocarbon reserves is opposite our expectations. When oil prices are high, hydrocarbon reserves increase conflict duration less, and when oil prices are low, hydrocarbons increase conflict duration more. Our findings on conflict onset contradict our expectations entirely. We found that oil prices and their interaction with oil production do not have a significant effect on conflict onset. These findings demonstrate that the impact of commodity prices on conflict dynamics is extremely nuanced. Although shifting oil prices are not enough to spark the onset of conflict, they play an important role in conditioning the relationship between hydrocarbons and conflict duration. In fact, rising oil prices mitigate the conflict-lengthening effect of hydrocarbon reserves.

These findings both contribute significantly to the existing literature and provide avenues for future research. Our findings suggest that the relationship between resources and conflict is not as straightforward as previously thought. They also demonstrate the importance of international economic factors in conditioning the relationship between resources and conflict. Additionally, although we do not disaggregate between onshore and offshore oil production in our analysis, our findings still enhance Lujala's finding that the location of natural resources matter (2010). The indirect mechanisms of economic and political weakness should also be conditioned by oil prices, with higher oil rents to the government exacerbating the dynamics of economic weakness and political corruption that increase the likelihood of conflict onset (Lujala 2010). However, our finding that oil prices are not significant when interacted with overall oil production further suggests that this indirect mechanism has little significance.

It is important that future research further investigate the mechanisms driving our findings relating to conflict duration to be able to fully understand how we may minimize the harm of civil wars. We propose that the shortening effect of high oil prices could be explained by the prices improving the strength of either the government or the rebels, allowing the group that benefits to end the conflict quicker. Research that accounts for how these conflicts end could indicate which of these mechanisms is most impactful. Future research could also investigate the influence of international prices in conditioning the relationship between other resources, such as those that are more easily extractable, and conflict. Finally, this interaction of resources and international prices could also be present in other conflict dynamics, such as conflict intensity. Overall, this research greatly contributes to our understanding of the relationship between resources and conflict and has the potential to drive significant

further research.

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