Is interstate conflict onset determined by natural resources and the number of OPEC members through their dynamic information?

Dissertation submitted

by

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to

Department of Economics,

University of Cyprus

in partial fulfilment of the requirements of the degree of

Master in Economic Analysis

Supervised by: Costas Hadjiyiannis

University of Cyprus, 22/5/2021

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Abstract

In the paper I answer the question if the existence of natural resources increases the probability of interstate conflict onset. As main measure for the existence of natural resource, I am using the sum of oil in the dyad, measured in different ways (crude oil reserves, production, exports, net exports, and rents) and some aggregations of it (crude oil and NGPL production, and fuel exports). The methodology I use to answer the question, is the recursive bivariate probit model to analyze the empirical results by endogenizing the terms of trade in the model. As for the cases that the endogeneity is not significant, I use the pooled probit model. Also, the paper has 3 contributions in the literature. Firstly, I use the dynamics of conflict for autocorrelation in the model. Secondly, I alternative measure the existence of natural resources by the number of OPEC members in the dyad, because OPEC members are countries that export crude oil. And thirty, I also measure the dynamic impact of the existence of natural resources on the probability of interstate onset. The empirical study includes 37,950 dyad-years that come from 275 countries and the period I analyze is from 1961-2009. From both models, I find a positive impact on interstate conflict onset from the sum of crude oil and is statistically significant. Only for the sum of the aggregation of fuel exports I do not find a statistically significant impact on interstate conflict after resolving reverse causality and endogeneity in the model. As for the non-OPEC members, the impact of the sum of oil rents on the probability of interstate conflict is statistically significant and robust as well. To overcome endogeneity and reverse causality problems in the model I am using lags on the sum of crude oil and the number of OPEC members which can be considered as a strategic oil variable (a mixture of crude oil reserves, production, and exports). There is very robust evidence that the dynamic information on the number of OPEC members increases the probability of interstate conflict onset. This variable has the most unbiased and asymptotically consistent results on the probability of interstate conflict onset. Considering the old information on the other oil variables, only the sum of crude oil net exports is statistically increasing the probability of interstate conflict onset but is not robust. And lastly, there is evidence that old information may count more than current information on the probability of interstate conflict onset.

Interstate conflict; Natural resources; Dynamic information; OPEC members

Title:

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Content:

1. Introduction

Interstate conflicts (a conflict between states) are very costly in human capital, natural capital, military capital, and have also economic costs, and political costs. Is very important to understand that conflicts are not rational or logical, because of their high costs. But instead of irrationality, there are some rational explanations why conflicts are initiating through the literature. Firstly, there is rational miscalculation because of scarcity on the information, and secondly, there is difference of opinions about the relative power between states (Fearon, 1995). I believe that the existence of natural resources and the economic benefits behind oil, are increasing the probability of interstate conflict onset. So, in this paper I will analyze the effects of the existence of natural resources on conflict onset, because their value is calling the leaders to be in conflict situation.

Is very important to understand the history and types of oil conflicts. Firstly, I will separate the types of conflicts and give some of their definitions and next I will refer to the history of conflicts. According to that information we will understand that oil conflicts are a globalized and a current phenomenon. Thus, I will give emphasis on interstate conflicts, because very few researchers did empirical research on how the natural resources affect the interstate conflict onset.

In this paper I will answer empirically if the existence of natural resources increases the likelihood of interstate conflict onset. This paper is the first that also investigates OPEC members and interstate conflicts. As methodology, I use the recursive bivariate probit model that is a remarkable regression which endogenize the terms of trade in the model and as one of the main contributions to the literature, is that I also include the dynamics of conflict for autocorrelation in the model. Additionally, the analysis would take place on the dynamics of natural resources and OPEC members as well. Old information is important for a state to take the right decision to be in a conflict stage or not. Apart from that, the analyses will investigate the impact of states that are not OPEC members, to ensure if there is any difference from the whole world analyses. I find statistically significant evidence that an extra unit (billion real 2010 $/day) of the sum of oil in the dyad and an extra OPEC member within the dyad are increasing the probability of interstate conflict onset. Also, this result is true for their dynamics too. Lastly, through robustness and consistency checks, the results are robust and consistent with the literature as well.

The rest structure of the paper is organized as follows. In section 2 I will give some information from the literature review, in section 3 I will analyze the empirical analyses, and in section 4 I will give some conclusions of the paper's results. Finally, through the paper I will use the military interstate disputes (MIDs) to refer to the interstate conflicts, because this conflict interpretation exists in my data and it is in common use from other authors too.

2. Literature review

2.1 Types of conflict and historical overview

From the literature I can define two major types of conflict for natural resources. Firstly, a natural resource conflict can be an intrastate (civil conflicts). Civil conflicts are the

intrastate wars between two or more groups in a country, one of the groups can be and the state's government (Blattman and Miguel, 2010). The intrastate wars for natural resources can be separated in separatist conflict (Murshed, 2010; Ross, 2004; Ross, 2005), and rebels-government conflicts without separation (Collier and Hoeffler, 2004). Through the literature, civil conflicts are observed from the period 1945-2000. So, it is a phenomenon for almost a century according to our literature. Most of these conflicts are for oil rents with a corrupted government (Collier and Hoeffler 2004; De Luca, 2017; Besley and Persson, 2008; Lujala, 2010).

Finally, natural resource conflict can be an interstate conflict as well and through the empirical study I will focus on this type of conflict. Interstate conflict is a type of war between two or more countries. The interstate wars are real attack wars or might be a war without force attack (Bremer, 1992; Hensel et al, 2006; Colgan, 2010; Caselli et al, 2013). In continuum, interstate conflicts are observed from the period 1816-2008 in the literature. Most of these conflicts are related with oil resources (De Soysa et al, 2011; Colgan, 2010; Caselli et al., 2013; Strüver and Wegenast, 2018). Lastly, in the literature, I observe that oil is more important post 1945, after the period of Worldwide War II (Caselli et al, 2013).

2.2 Irrationality and rationality of conflict

First, I must explain the rationality of not doing a conflict. In my opinion a conflict has a lot of costs as I mention above and as we see in the research of Conconi et al (2012), they found that conflicts can have short-run benefits, but long-run losses. Firstly, in human capital there are costs of battle deaths, because when a high intensity of war is in action, many civilians and soldiers lose their lives to defense their country or to attack another country for some ''benefits''. Also, the human psychology before war it might be in a good stage, but after war it will be in a bad stage especially for the humanity that lives a direct battle war. Many soldiers and civilians have psychological problems post-war because they have seen families, innocent people, and their battle allies to die in front of them. Apart from human capital costs, we have costs on natural capital (Taillard, 2018; Blattman and Miguel, 2010; Deininger, 2003). After a high intensity war with direct attack, we might have destructions of houses, factories, schools, stores, vehicles, and machines. Additionally, to begin a war and during its duration there are a lot of military capital costs. A war needs a lot of expenses on war machines. War machines must update their technology in some cases to have stronger and more efficient military machines. There are a lot of fuel costs for the machines and technical repair costs. Also, there are costs on human soldiers. Army must supply the soldiers with clothes, ammo, weapons, water, and food, so they can survive the duration of war (Janus, 2012; Taillard, 2018). Apart from that, army must make a lot of military defense expenses. Army must pay salaries to soldiers to protect the country and buy a lot of defense army machines like army tanks, airplanes, and ships. Also, soldiers must be supplied with education on how to operate weapons and army machines.

Additionally, war has also economic and political cost, and a lot of future uncertainty on victory as well. Considering the economic cost, a war can increase the trade risk and reduce the trade volume. In the paper of Hadjiyiannis et al (2016) for example, they found that the bilateral trade stops between the states which are under war. With conflicts, borders are closing, there are diseconomies of scale (countries will pay more average cost for more production) and

transportation costs are increasing, because communications with some countries are decreasing (Taillard, 2018). So, trade cost increases, and effective labor decreases (Martin et al., 2008). War might bring a lot of production destructions and can make a lot of civilians to starve. In continuum, it decreases GDP and can drive to hyperinflation from the rapid increase in prices, so the country can become underdeveloped, and the people want a more stable currency, so to be easier for the civilians to be supplied by the local producers and import goods from abroad. And will take a lot of duration for the country to recover. Now considering the pollical cost, in the research of Martin et al (2011), found that recent wars increase political negotiation cost. Also, some of the causes after a war are, weak states, weak institutions for conflict solutions, poverty, etc. Finally, war has an uncertainty in earnings. War has a lot of uncertainty for future earnings, and when the military borrows from the government for the equipment of their soldiers, is not sure that there will be a victory to cover all the cost after the war (Janus, 2012). In other words, war is very costly in a lot of sectors and is hard to believe that a rational state will take a war action, but as we will see in continuum there are some rational explanations behind these activities.

Now according to Fearon (1995), and Blattman and Miguel (2010) we will explain the rationality behind the wars. The puzzle of war is defined by states that do not want a specific war between them (is costly) but are getting in military conflicts. A necessary condition for a war, is that states cannot find an agreement for bargaining. Some people might be irrational sometimes and make wars because of miscalculation on the costs of war. One reason for this is because, war's expected benefits are more than expected costs (Paul and Anke, 1998). In some cases, leaders make benefits from war, and their soldiers and citizens suffer the cost. Additionally, when the returns from fighting are greater than the returns from production, then people will raise wars. So, resource wealth is very important for the returns a fighter will get. Also, there are rationalist arguments from neorealism. For example, anarchy, rational preventing war, rational miscalculation from not enough information, and error in predicted relative power. Leaders try to get better deals by mispresenting their private information for military capabilities. Also, with mutual optimism for victory, we have human irrationality, and they avoid reality rationally. So, a war has more probability to begin from commitment problems. The case about war with commitment is when there is anarchy and there is not a leading power to put the state in jail. And this uncertainty, makes people to protect themselves by producing weapons to defend their selves. So, there is more probability to attack with these preferences. Another explanation for the current wars is that in 19th and 20th century is not easy to trade territory like in 17th and 18th century. So, if a state wants the oil resources of another state and wants to take the whole territory is not so easy nowadays. In other words, the most rational causes of war are the failure to have equal power between states, multipolarity, offensive advantages, and of course miscalculation of cost of war with a high-value prize (oil for example), where interstate oil war is my focus on this paper. So, we have commitment and information problems.

2.3 Theoretical background

Oil has two impacts on states (Colgan, 2010). The first one is that brings peace between countries with more stable trading, so oil increases their economic activities. The second one is that increases war between countries, because there are leaders that want the resources of oil

to increase the military capability of the state, thus they get oil as a fund for their preferences. Also, Janus (2012) investigates the link between resources and the probability of conflict and natural resource again is a fund for the victor in conflicts. In their theory, they use a model to show that the stock of resources, a second prize and other future prizes can drive to increasing conflict violence. From their model, when there is a case that the agriculture production decreases, then the probability of conflict will be increased, because the country needs natural resources such as oil to increase their agriculture production. Conflicts are starting because the returns in peace are relatively lower when there is a war. So, conflicts are more probably to start when there are remittances to fund the conflict. With resource exportation income, they can hire soldiers, or buy inputs for the war like vehicles, fuels etc. Government uses the natural resource revenues for military demands, for example to build war machines or to buy and resell expensive weapon systems. Also, many resources that are concentrated in the period of conflicts, are more easily to be defended and sold in the international markets. Additionally, there were examples of soldiers that had a business, which was selling stocks through airplanes in conflict areas and the stocks were exchanged with naturals resources. Thus, the military equipment was growing continuously.

Now from Collier et al. (2004) that explains theoretically the side of rebellions, there are some theories that can account and for interstate disputes. The rebellion is regarded as an investment for the future benefit post-war, as a business for the current benefits during the war and lastly as a mistake because the military optimism does not recognize any settlement with mutual advantage. The same explanations can be considered for interstate wars for natural resources and a mixing of that explanations can explain very well the motivation of capturing the oil by an interstate military dispute:

1. **Interstate conflict as an investment**: Conflict is an investment for the state's future preferences.

2. **Interstate conflict as a business**: Conflicts pay back the states by income or satisfaction for their current grievance and greed (Collier et al., 2004; De Soysa and Neumayer, 2007; Lujala, 2010).

3. **Interstate conflict as a mistake**: Military overestimates its power and feels that will have a victory, thus there is not a peace outcome.

2.4 Evidence base on the demand of natural resources and initiation of conflicts

Natural resource evolution and OPEC members

Covert et al. (2016) explain why natural resource extraction is faster today, especially for oil. With the new technology fuel extractions are faster. From 1967 countries began oil production from tar sands and the production increased very fast. Oil shales are having a large quantity production. For their extraction, engineers used horizontal and hydraulic fracturing

tools in 1980. In U.S. and generally in most countries, developed wells are more than exploratory wells because of the lower risk to discover natural resources. They observe that from 1949 until 2014 these wells are increasing. The supply of natural resources increased a lot from 1970 in Alaska and the North Sea. This information is significant for the interest of interstate conflicts, because many states increased their technology on oil extraction and there is a lot of demand on this natural resource, so there are more oil resources for states to capture now than before. Considering the gas and renewable resources are not having so much interest in interstate conflicts. Covert et al. (2016) mentions that a form of natural gas is methane hydrates that are found under the sea. Geologists discovered this resource from 1960. The cost to extract this resource is a lot, so is not easy to trade this resource because of its high price. Lastly, renewable resources are still not in high use, but oil shale and hydrates methane will be the future fuels.

Apart from that, the Organization of the Petroleum Exporting Countries (OPEC) was founded in September 1960 by the Islamic Republic of Iran, Iraq, Kuwait, Saudi Arabia, and Venezuela. In 2020 there were extra 8 members that stayed in OPEC, Algeria, Angola, Congo, Equatorial Guinea, Gabon, Libya, Nigeria, and United Arab Emirates. Any country with a large size of crude petroleum net exports, which has similar interests to those of OPEC members, can become a full member of the organization, and the country must be accepted by a majority of 75% of full members, including the concurring votes of all founder members. Additionally, they can vote and for associate members which are countries that do not qualify all the conditions of full members. OPEC's mission is to organize the petroleum policies and guarantee a balance in oil markets to accomplish a well-planned and economic supply of petroleum to consumers, a stable income to producers, and a trustworthy return on capital for those investing in the petroleum industry. Thus, the role of OPEC in oil markets is important and, in this paper, the information of OPEC members might play a significant role on the incentives to initiate an interstate conflict. OPEC members can be considered as a mixing of oil reserves, production, and exports, but with less risky supply of their oil resources than other individual states and so I take the advantage to use this information in my paper to accomplish more unbiased results on the impact of a strategic oil variable on the probability of interstate war onset.

Incentives and disincentives of interstate wars from natural resources

In the one hand natural resources have a lot of pros for countries and this might give incentives for interstate oil wars. In the empirical paper of Venables (2016) the subsoil assets can increase employment and growth for a country. Some subsoil assets are hydrocarbons and minerals. These assets can also increase revenues from foreign exchange and help in fiscal capacity of the government. These assets are very important for countries that are not having enough capital and are developing countries. Subsoil assets belong to the government in a lot of countries, so for a successful usage of the resources, government must be capable and have good intention. Fiscal revenues are coming more from oil producers. For the exploration and development of resources, firms need to pay a license fee. The licenses are given by auctions, so there is a competitive and transparent process that can give enough rent to the country. Also, there is tax on royalties of the extraction output and agreements to share production with government. Government also takes corporate income tax. Concluding, resource wealth drives

to conflicts and insurgency because oil revenues are a mean for the government's funds. For example, autocrats remain in power with the use of resources. So, resource rents are very important determinants for military, political and economic strategies.

In the other hand the reserves of oil might have disincentives (less impact) or no impact on interstate wars. Analyzing the empirical papers of Venables (2016) and Bulte and Damania (2008), nonrenewable sources are risky for their discovery or extraction, because of their price uncertainty and geological difficulties. Also, is very risky for the investors to invest in these resources, because of the uncertainty in institutions, the local economy, or the political environment of the state. Additionally, the security of resources is difficult. A weak institution plays an important role for the cost of the discovery and extraction of resources.

Natural resources and conflict:

Qualitative literature

Through the years there have been a lot of thefts, civil conflicts, and interstate conflicts between countries, because of natural resource existence. Anyio (2015) analyzes the impact of oil theft in Nigeria to the economy. Nigeria is the 12th country in petroleum production and the 6th country in oil exporter in the world. Oil is accounted for over than 90% of foreign exchange revenues. Her exportation and production of oil is not operating at the maximum, because of civil strife and corruption. Thus, oil rents are attracting thieves, because of the high economic benefits. Also, oil production is more lootable (Lujala, 2010). For example, in Nigeria they use pipelines to export the crude oil and they loot it from the delta area. Additionally, Strüver and Wegenast (2018) give some examples of oil war. In 1990 there was the Iraq's invasion of Kuwait and in 2008 the crisis of Georgia and Russia. There were also conflicts between countries sharing a border. For example, the war in Ecuador and Peru, was on the mountain Cordillera del Condor, where there were beliefs of high levels of oil reserves. Apart from that, China displayed force against Vietnam for the oil explorations near the Spratly Islands. Also, there was conflict between Nigeria and Cameroon over the territory in the Bakassi Peninsula Area which was having a lot of oil reserves. So, rich oil countries are involved more in interstate disputes and in some cases countries finance conflicts for their own benefits, because if they have shares of oil reserves, they do not want to lose their income.

Empirical literature

Some papers refer to natural resources and civil conflicts. Natural resource abundance, in the book of Murshed (2010) and resource rents dependence is important for conflicts. Additionally, De Soysa and Neumayer (2007) found that oil rents are significant to increase the risk for civil wars and increase it more than the mineral rents. Finally, they found that the counties that their primary oil exports are the one third of total exports, have a double risk of civil conflict. Apart from that, Ross (2004) reviews some empirical and qualitative studies on civil conflicts and natural resources. These papers studied civil conflicts in Liberia, Sudan, Sierra, Leone, Democratic Republic of Congo, Colombia, and Angola. These studies are from political, economic, and geographic science. Firstly, the main findings are that oil increases the probability of separatist conflict onset. In some cases, there are secessionist movements, and the locals create an independent state to capture foreign investments for their natural resources

and this happens when the resources are concentrated in their region. Lastly, he does not find robust evidence that the aggregation of primary goods from agriculture and oil goods have impact on conflicts. In some cases, resources might be a spurious reason to begin conflicts and the reason might be a weak state capacity, for example the state might have weak rule of law and is not efficient in raising investments in the manufacturing sector, thus is becoming more resource dependent. Some found that resource exports to GDP increase conflict from 1%-22% until the resource exports are at 32% of GDP and after they decrease the probability of conflict. Also, the probability to begin a war is after 5 years. In other cases, conflicts for resources are more probably to happen when there is a capital-intensive process for their extraction, because there are low wages to the low skilled labor, and a lot of gains to the firms and government. Additionally, some others conclude that resource dependence (ratio of primary good exports to GDP) has only significant impact on wars with 1000 battle deaths per year. Others found that resource dependence is correlated only with non-ethnic conflicts. Also, Paul and Anke (1998), investigate the causes on civil conflicts with more than 1000 deaths per day by probit and tobit models for the period 1960-1992 across 98 countries and they find that the natural resource exports to GDP are increasing the probability of initiation and the duration of civil conflicts as well. Concluding, natural resources play an important role for civil conflicts.

Bove et al. (2016) analyze the reasons a state intervenes in a current civil war. The state intervenes in an ongoing war when the war-state has high level of oil reserves and when oil is the most demanded resource for the intervene-state. An example is the US invasion of Iraq in 2003. They intervene to have for example beneficial oil prices after the war's end. So, interventions in conflicts are not always just for peace outcome, but also for some benefits for the intervene country.

Others find that resources have a negative effect or even no impact on civil conflicts. Brunnschweiler and Bulte (2009) find that resource dependence is endogenous in the model of conflicts and after instrumenting the endogenous variable, they find that resource abundance reduces the probability of conflict and is a robust and statistically significant result. If a country has a lot of resources, then it has a lot of income and as result the conflicts are reduced. Form the other hand Ross (2004) reviews some empirical and qualitative studies on civil conflicts and natural resources do not have an impact on civil conflicts. From these studies through his paper some studies found that the ratio of primary good exports to GDP has not significant impact on the probability of conflicts. Additionally, some others conclude that resource dependence has no significant impact on civil wars with 25 battle deaths per year.

Also, many authors did empirical studies on natural resources and conflicts by a weak behavior of state. De Luca et al (2018) find that when a state has weak leaders and a lot of resources which are divided unequally between ethnic groups, there is more probability to start civil conflicts. These conflicts may reduce the tax base because labor must get in the war but will increase the tax rate for the resources needed to be given for military power. Thus, leaders take this opportunity to initiate conflicts for a higher tax income. This is the theory of ''rentier effect'' (Caselli and Cunningham, 2009; Ross, 2001), where states take a lot of revenues from oil exports and tax their people by low taxes or zero taxes, so their people do not demand accountability of the state, because they do not have social pressure, and it might be a reason of the increasing probability on conflicts. Additionally, Ross (2001) tries to see if oil is hindering democracy. In many papers, generally higher income makes states more democratic but when income comes from oil reserves then the state becomes less democratic. He uses

pooled time series with cross national data for 113 states and for the period 1971-1997. He finds that oil exports inhibit democracy more in poor than rich states and this evidence is statistically significant and robust. This effect is not displayed only in Middle East region but also in Indonesia, Mexico, Nigeria, and Malaysia. So, with these findings, countries are becoming more autocratic and are less accountable. Caselli F. (2006) finds that natural resource revenues make leaders to do a competition to be in power, thus the effective discount rate of the government is increasing, and the government is decreasing the investments for the development of the economy. When there is a probability of losing power in government, leaders are not investing so much in human capital, rule of law, or contractual enforcement and thus the development of the country is lower. Finally, greed and grievance are another root for conflicts, especially when there is competition for resource rents and when negotiation on rent sharing has failures (Murshed, 2010; Collier and Hoeffler, 2004; Brunnschweiler and Bulte, 2009). Thus, states become more political unstable from oil rents and this can drive to future wars to take resource rents from other states as well.

Some could conclude that there are indirect effects on civil conflicts from natural resources. Collier and Hoeffler (2005) analyze some economic and political papers and find that countries with resource abundance have low income and low growth rate (economic literature). Thus, there are more conflicts at these countries because the opportunity cost for rebellions to start a conflict is lower. Paul and Anke (1998) for instance, find that a lower income per capita is increasing the probability of initiation and the duration of civil conflicts. The most times, countries with a lot of natural resources, have weak institutions. Thus, they do not have democratic system and they do not have competition on the representative leaders of the country. Instead, they have a patronage system and leaders help their relatives, friends, and their supporters, thus there are no equal civil rights (political literature). With these effects, natural resources directly affect the state's economy and capability negatively and increase indirectly the probability of conflicts by lowering the cost of rebellion.

Additionally, some papers refer to natural resources and interstate conflicts. Koubi et al. (2014) make a review of empirical studies and conclude that renewable resource scarcity increases the probability of conflict with weak evidence, but non-renewable resource abundance increases the probability of conflicts with strong evidence. De Soysa et al. (2011) do an empirical research for oil exporters and interstate conflicts by using relogit regression for the period 1946-1999 with 405,000 dyad years. The exporters of oil have at least 30% of total export revenues or their rents are at least 10% of national income. They find that exporters of oil have more probability (0.391) to start low level of disputes with non-exporters and this probability was higher when we exclude other variables (democracy, major powers, distance, trade). Also, when major powers are importers of oil, are protecting their exporters and the exporters have less probability (-4.308) to start conflicts. Strüver and Wegenast (2018) analyze the link between oil and militarized interstate disputes as well. For the period 1946-2001 by using logistic regression, they find that oil abundance and dependance (lagged by 1 year for reverse causality problem) are increasing conflicts and the results are statistically significant. Their findings have the following positive impacts on the probability of interstate conflict onset: (0.00588) oil dependence, (0.0704) oil production, (0.186) oil reserves, and (0.0000123) net oil exports. States with high level of oil reserves increase the probability to be targets of conflicts from others, but small states (in population) are having more probability to be targets. Also, only oil reserves increase statistically significant the intensity of conflicts. Oil abundance

per capita is not a significant determinant of conflict. Colgan (2010) with an empirical study on the period 1945-2001 with 170 countries finds that states which export oil and are revolutionary simultaneously are having more probability (0.617) to be in war, because are aiming to get other countries' resources. He finds also that petrostates are involved in war 50% more than non-exporters of oil. To measure petrostate countries, the gross profit from oil net exports must equal at least 10% of GDP. His results are statistically significant and robust. Other methods he used for petrostate measurement are to use continues variables for revenues from oil exports to GDP, per capita revenues from oil exports, alternatively he used total production of oil in these methods and not the oil exports, and lastly, he used 20% as threshold for the dummy variables of petrostates. It seems that oil is important and for interstate conflicts as well.

Others analyze the impact of geographic position of natural resources on intrastate and interstate conflicts. Caselli et al. (2013) use a linear probability model, a probit, and a logit model for the period 1946-2008 with 606 dyads of countries that share the same land borders or coastline. They find that when only one state of the dyad has oil resources, then the probability of interstate conflict onset is increasing, and when oil resources are closer to the border the increase is more. When both states are having oil resources, the probability of interstate conflict onset is increasing and when the resources are located asymmetrically to the border the increase is more. When both countries have oil, the probability of interstate conflict is less than the case where only one country has oil. Also, asymmetry in endowments and locations of oil is important for the interstate conflict between rich-resource countries. Additionally, when the location of oil resource is onshore or offshore, the impacts on interstate conflicts are almost the same. They use lagged variable of oil fields and their evidence are statistically significant after the worldwide war II. Lujala (2010) finds that when there is a civil conflict in the area where there are natural resources, the duration of a civil conflict is increasing (does not matter if there is production or not) and is almost doubled. If rebels have access to the resources, increase the probability of a successful civil conflict. Also, the distance of resource fields plays an important role for the cost of civil conflict. Specifically, when oil production is on land there is more probability of civil conflict onset and when the production is over water there is no impact on conflict. Resources that are located to fields with easier process of exploitation, increase the probability of conflict. Levitt (2016) does an empirical research on onshore oil and gas exploration. He finds that the rates of exploration are very important, because there is a high cost of exploration. Only the drilling costs for an oil field of 5200 ft depth in the well of Leduc-Woodbend in 2006 were 494,000 Canadian dollars. Lastly, onshore drilling is easier than offshore side in terms of time and transportation. So, the geographic position is very important for the cost of war and by concluding, a state that has not onshore oil wells, might find it more beneficial to steel oil that already is being produced, instead of paying the extra cost of exploration.

Lee (2018) investigates the link of terrorism and oil. He explains theoretically and finds empirically that oil can be linked to terrorism in 3 ways, funding, targeting, or motivating terrorism. Countries fund others to do terrorist activities on oil countries. Countries that have oil are more likely to be targeted by terrorism. They terrorist these countries to harm their oil facilities, stop their global development, and increase their own benefits. For example, in Saudi Arabia in 2004 there were a lot of terrorist activities and the result was a high increase in oil price. Lastly, oil is a motivation from grievance and greed for domestic terrorism in oil

countries. By using large and small data set, he finds that targeting and motivating explanations are more likely for terrorism than funding. Oil reserves increase terrorism by (0.158) and is statistically significant. Countries that have oil reserves and produce oil (especially US allies) have more probability to fund terrorism, and the funding is visible by money transferring, especially for extorting or kidnapping workers which work in oil sector. But funding is not always visible. In non-democratic countries that there is oil production, is very difficult to have a clear view of the government's movements, especially funding for terrorist activities.

Others relate conflicts with resource prices. Lower export prices of primary commodities (that is an income for rebels) reduces conflict's duration (Collier et al., 2004). There is rent seeking in countries with natural resources and have conflicts during price booms (Herzberg and Lorz, 2020). Besley and Persson (2008) analyze the incidence of a civil war with cross-sectional and time series variation. They find that the prices of exported and imported commodities are affecting positively the probability of civil war. These price effects are statistically significant and are consistent with weak political institutions only. Hendrix (2017) analyze the effect of oil prices on conflicts as well. He finds that high oil prices within oil exporters that their exports are higher than 10% of GDP, increase the probability of interstate war onset and is statistically significant. For states that are not petrostates, prices do not have an impact on conflicts. Lastly, his findings are not consistent with the phenomenon that petrostates are targeted, but petrostates are initiating the disputes. As a conclusion even resource prices are significant determinants of conflicts.

2.5 Evidence base on the reverse causality of preferential trade agreements and conflicts

General information on MIDs and regional trade agreements

The literature gives some information about the custom unions (CUs), common markets, partial scope agreements and free trade agreements (FTAs), and the correlation on MIDs (Vicard, 2012). The common market regional trade agreements (RTAs) are created between countries that have interstate disputes and have low trading costs, but the free trade RTAs are created for the opposite reasons. Common markets have more process to be created (harmonization of regulations, free movement of goods, machine, and human capital) than a custom union (it wants a common external tariff). Free trade agreements have not a process for integration of political institutions. Regional trade integration can help to find solutions on signaling, time inconsistence, security, and cooperation. Finally, common borders, common language, common colonial history will increase the signature of an RTA and MID's simultaneously between countries.

Regional trade agreements as dependent variable

Through the literature review, some papers investigate the impact of MIDs on regional trade agreements (Martin et al, 2011). The past wars pre-1945 had a significant destruction in the whole world. Until 1945, 2 worldwide wars broke out and many lives and buildings were

destroyed. The whole economy of the world was almost stopped. Through all this situation, people started to realize the cons of war and begun plans to raise their benefits through trading between them and to stop wars. In the empirical research through literature there are significant robust statistical evidence that trade gains and pre-1945 wars interacted with trade gains, are increasing the probability to sign regional trade agreements. This interaction has economic and political targets. Two examples are EU and communist country pairs. EU was created by Robert's Shuman proposal and the members were coming closer together by pooling their production and having a common new high authority. It was created to prevent worldwide wars to start again and for economic integration. They used free trade agreements to accomplish this target (multilateral openness has positive correlation with RTAs, because of globalization effort). In that time, they found that trade gains were having their maximum value. Also, communist country pairs had intense wars before with USSR and now they want peace. With regional trade agreements, there are more than 50 years of peace through these country pairs. But recent wars have negative impact with RTAs. The effect of conflict on trading is negative and significant for 10 years (Martin et al., 2008). Also, Kim and Rousseau (2005) find that by resolving simultaneity bias and by using the 2-stage probit least squares method, still conflict decreases economic interdependence. Finally, Anderton and Carter (2001) found that war between 14 major power dyads decrease the trade pre- and post-war. The same result is for 13 non-major power dyads but is weaker.

MID as dependent variable

Others investigate the impact of regional trading on MIDs (Martin et al. 2008; Hadjiyiannis et al. 2016; Vicard 2012). Generally, we conclude that from these empirical studies, trading is decreasing the probability of MIDs onset, because of the opportunity cost that a country has in wars. From the one side, bilateral trade, a common market, FTAs (they have tariff complementarity effect), or CUs (they have tariff complementarity effect and market power effect too), where they are preferential trade agreements (PTAs) within a pair of dyad seems to decrease the probability on bilateral war onset. But from the other side multilateral trade or PTAs with third countries outside the dyad are increasing the probability of MIDs onset, because here the opportunity cost of war does not depend only on the MID dyad, but depends on a lot more countries, so is decreased. Trade with a lot of countries, is a model that allows for diversification on imports and decrease dependence for a single source, thus the probability of bilateral war is increasing. And apart from that, exports from a specific commodity which is oil, is increasing the probability on MID onset, which is our interest on this paper.

Some authors from the other hand, do not find significant effects of PTAs on the probability of MID onset. Vicard (2012), finds that FTAs do not have an impact on the probability of MID onset. Kim and Rousseau (2005) use a data set of international conflicts for the period of 1960-1988 and find also that economic interdependence will not decrease conflict significantly by resolving simultaneity bias and by using the 2-stage probit least squares method.

2.6 Literature review on other determinants of conflicts

Regimes

Some papers investigate the effects of regimes on the probability of MIDs (Zanardi 2012; Sørli et al. 2005). Generally, democracies have a negative impact on the probability to initiate conflicts. The reason is that leaders of democracies are having more accountability than the leaders of autocracies. The democratic institutions make the leaders more discipline because they will lose their position if they get in conflicts with other countries. Also, the leaders of a democracy, when there is a crisis, they send credible signal for the government's political incentives. But there is an extra characteristic in some cases, where even democracies can start conflicts. Zanardi (2012) tests the hypothesis that executive term limits can increase conflicts and can eliminate electoral accountability after a fixed number of term limits. Democracies with presidents that have binding term limits are having more probability for a conflict like autocracies and thus re-elections are used to reduce the probability of conflicts. Sørli et al. (2005) try even to find the reasons of the conflicts in the Middle East. They find significant evidence about the impact of regime on conflicts, but they do not find significant evidence from the impact of the interaction of the regime and oil dependance. Aslaksen and Torvik (2006) found through a theoretical model that resource rents are increasing more the probability of conflicts than democracy and thus put democracy to a survival test. If there is high political competition, countries will not pass this test, because everyone will want the resource rents and there will be political instability in the state. In the book of Murshed (2010), the states with civil conflicts are having autocratic regime and are having more volatility in political regimes. Also, democracies are economically interdepended especially from international trade and is less likely to have conflicts between them (Murshed, 2010; Kim and Rousseau, 2005). Globalization helps a state to grow its economy and thus the risk of conflict is reduced. Finally, Elbadawi and Sambanis (2002) found that even across ethnic fractionalization, democracies have lower probability to increase conflicts than autocracies.

Military, geographic, social, and economic variables

Some papers investigate military, geographic, social, and economic variables as determinants of conflicts. Civil wars are coming from low growth and low income per capita (Blattman and Miguel, 2010; Murshed, 2010; Collier and Hoeffler, 2004; Paul and Anke, 1998), but this is not significant for countries with democracy, is only significant for autocratic countries (Brückner and Ciccone, 2007). Low growth brings poverty to states, like countries in sub-Saharan Africa. These findings are robust and statistically significant. Also, income inequality increases conflicts (Collier and Hoeffler, 2004). Bremer (1992) finds that interstate wars are more likely for states that have almost equal relative power (number of populations in the country and in the military, the military expenses, iron and steel production, and energy consumption as averaged shares of the whole dyad), are not having alliances, are closer to each other, are having contiguity, are major powers, economically advanced and have a high level of military power. He analyzes the period of 1816-1965 with 202,778 dyads and the above findings are significant for bivariate regressions. When he runs multivariate regressions, the findings are not the same. Lastly, conflicts are determined also from the conflictual history of

the states and civilization group differences (Kim and Rousseau, 2005). Paul and Anke (1998) for example, find that the ethnic diversity and the number of citizens as well are increasing the probability of initiation and the duration of civil conflicts with more than 1000 deaths per day.

3. Empirical analyses

3.1 Data description

As base model, I am using the statistical model of conflict in the paper of Hadjiyiannis et al (2016) and including as extra variable the measures of having oil. In my model I am using the military interstate dispute's (MID) data from Correlates of War (COW) project to estimate predictions on the MIDs onset. In the whole sample there are 37,950 country-pairs per year that come from 275 countries, for the period 1950-2013. But in the regressions, I use only the period 1961-2009, because in the model I include 10 years of lags on MIDs for autocorrelation. I am using a recursive bivariate probit model to avoid the endogeneity bias and reverse causality in my regressions. Theoretically and empirically MIDs are decreasing PTAs and PTAs are decreasing MIDs, so these variables must run together, and this model give us the opportunity to endogenize PTAs in MIDs model. Also, I choose the recursive bivariate model and not the standard bivariate model, because in the model of MIDs there are some variables that are running and for PTAs model simultaneously, so is like having seemingly unrelated regression models. And finally, this model is very good choice when we predict dummy variables and endogenize as well dummy variables in the model, because is like we measure probabilities and we do not want our predictions to equal less than zero (to have a negative probability) or to equal more than 1 (probabilities do not excess 1). In my situation, MIDs and PTAs are both dummy variables.

Dependent variable:

MIDs

As dependent variable, I use the dummy variable MID_{ijt}, which takes the value 1, if the dyad of country i and country j in the year t had a min hostility level reached in dispute at 3,4, or 5 as coded in the COW project, in other words if the dyad used the display of force (3), the use of force (4) or actual warfare (5) (Jones et al., 1996). The dummy variable MID_{ijt}, takes

the value 0 otherwise. For the period 1961-2009, there are 2,253 cases of MIDs that had a min hostility level reached in dispute at 3,4, or 5 and is the 0.1% of the sample (see **Table 2**). As it seems I lose 435 MID cases from the full sample for the period 1950-2013. In the sample within the period 1950-2013, there are 101 countries that have oil reserves. From these 101 countries, the 62 countries have a MID and 9 of these 62 countries are OPEC members (Venezuela, United Arab Emirates, Saudi Arabia, Nigeria, Libya, Kuwait, Iraq, Iran Islamic Rep., and Congo Rep.) (I do not show the table of the countries to save space). For robustness check I test the model with the hostility level reached at least 4, or 5 and 5, to test for more intense war levels. Unfortunately, MIDs with the hostility level reached at least 5, cannot be regressed because there is no concavity in the estimation of the max log likelihood and the results will be biased.

Table 1: Descriptive statistics of the main variables (period: 1950-2009)

Dependent Variables					
Dummy Variables	**N**	**Frequency (d=1)**	**%**	**S. D.**	
MIDs (min 3, 4, or 5) (i,j)	2,428,800	2,688	0.11	0.033	
Independent Variables					
Continues Variables	**N**	**Mean (billion real 2010 $/day)**	**S. D.**	**MIN**	**MAX**
Sum of crude oil reserves (i,j)	628,290	3.250	20.460	0	489.033
Sum of crude oil exports (i,j)	699,167	0.035	0.219	0	5.035
Sum of crude oil net exports (i,j)	698,980	-0.001	0.0821	-1.417	1.214
Sum of crude oil production (i,j)	538,231	0.069	0.430	0	8.279
Sum of total crude oil and NGPL production (i,j)	699,660	0.074	0.453	0	9.477
Sum of fuel exports (i,j) (minerals fuels, lubricants, and related material)	346,542	0.094	0.481	0	9.393
Sum of oil rents (i,j)	551,623	0.052	0.292	0	6.346
# OPEC members in dyad (i,j)	2,428,800	0.069	0.259	0	2

Notes: All oil variables are measured in US billion real 2010 $ per day.

Table 2: Descriptive statistics of the main variables (period: 1961-2009)

Dependent Variables					
Dummy Variables	**N**	**Frequency (d=1)**	**%**	**S. D.**	
MIDs (min 3, 4, or 5) (i,j)	1,859,550	2,253	0.1	0.035	
Independent Variables					
Continues Variables	**N**	**Mean (billion real 2010 $/day)**	**S. D.**	**MIN**	**MAX**
Sum of crude oil reserves (i,j)	539,248	2.612	15.703	0	438.038
Sum of crude oil exports (i,j)	608,003	0.030	0.183	0	5.035
Sum of crude oil net exports (i,j)	607,816	-0.001	0.069	-1.417	1.214
Sum of crude oil production (i,j)	468,667	0.060	0.367	0	8.279
Sum of total crude oil and NGPL production (i,j)	609,348	0.062	0.376	0	9.477
Sum of fuel exports (i,j) (minerals fuels, lubricants, and related material)	295,950	0.075	0.369	0	8.159
Sum of oil rents (i,j)	479,299	0.044	0.240	0	5.943
# OPEC members in dyad (i,j)	1,859,550	0.083	0.281	0	2

Notes: All oil variables are measured in US billion real 2010 $ per day.

Main explanatory variables:

Sum of oil

As main independent variables in the model I am using the sum of oil within the dyad in billion real 2010 $/day. I am using the sum of i and j country in the dyad for the following variables: crude oil reserves, exports, net exports, production, and the aggregation of total crude oil and NGPL production. These variables have been used from Independent Statistics and Analysis U.S. Energy Information Administration (EIA). Additionally, I am using some data from World Development Indicators - World Bank DataBank. I am using the sum of i and j country in the dyad for the following variables: the aggregation of fuel exports (minerals fuels (oil, natural gas, and coal), lubricants, and related material) and oil rents. The value of oil rent is calculated by the difference between the world's commodity price and the average cost to produce it and after that, rent price is multiplied by the commodity's quantity and we get the rent value. Here I use the aggregate independent variables to see even if these variables have a significant impact on the probability of MIDs. Additionally, I use the oil rent value to see if MIDs are raising because there are rents on oil and not just their existence on earth. Finally, in

my models, all oil variables are measured in US billion real 2010 $ per day and are continues variables. I do not convert the variables in log form for two reasons. Firstly, I will lose a lot of information from the sample, because oil variables are >=0, so the data from 0-1 will become missing (see **Table 1**). And secondly, in the literature Strüver and Wegenast (2018) are using log transformation of oil variables and to do not lose any observations, they change any 0-1 data to 1, so in log form all this data will be equal in zero, but this way of changing the data might bring biased results in the regressions.

Sum of OPEC members within the dyad

Finally, I use a variable that can have the characteristics of strategic oil measurements. I include in the model the sum of OPEC members within the dyad, which is a variable that can be characterized as a combination of oil reserves, production, and exports. This variable can also solve the reverse causality and endogeneity problems that can arise from the standard sum of oil measurement and the dependent variable MIDs. This information has been taken from the official webpage of OPEC in the section that talks about their country members. From **Table 1** it seems that in the sample there are cases with 0-2 members of OPEC within the dyad.

Control variables:

Preferential trade agreements (PTAs)

Now, I am getting away from the natural resources and starting with some control variables between the countries in the dyad. In my model I include some regional characteristics on trade, the preferential trade agreements (PTAs), which take the value 1 if the dyad of countries i and j are having Custom Union (CU) or Free Trade Agreement (FTA) between them and 0 otherwise. Apart from that, I include the CUs and FTAs between each country separately and the rest of the world which is a third country. The first variable is the PTFTA that measures the percentage of FTAs between the country-dyad (i or j) and third countries at time t, but excludes countries that have made FTAs simultaneously with both countries i and j at time t. The second variable is the PTCU, which measures the percentage of CUs between the country-dyad (i or j) and third countries at time t, but excludes countries that have made CUs simultaneously with both countries i and j at time t. It is very important to include these variables, because trading has an important economic opportunity cost for the participants in the MIDs and can affect the likelihood of MID's initiation. As we see in the paper of Hadjiyiannis et al. (2016), the enemies can avoid the Nash trade barriers with each other and increase their welfare also by better terms of trade with third countries through tariff complementarity effect from FTAs and CUs, and through market power effect from CUs as well, so we have peace distortion in that case within the dyad. The trade data comes from the COW Bilateral Trade data set, version 2.01 (For more information see Hadjiyiannis et al., 2016).

Trade or gravity variables

Additionally, there are some trade (or gravity) variables in my model that cover both MIDs and PTAs (for more information see Hadjiyiannis et al., 2016). As trade variables, I use the weighted bilateral distance (is weighted by the population of the most populated cities and is measured in km) in logarithm measure, the dummy variables if the dyad (i,j) has contiguity, colonial links, share a common official primary language, was not trading 4 years before (this variable is included to show if there is an economic interdependence between the country-pair (i,j) and the 4 years lag is because of the contemporaneous reverse causality on MIDs), and the sum of General Agreement on Tariffs and Trade (GATT)/ World Trade Organization (WTO) members for the dyad i,j (is also an economic dependence and might affect the probability of MIDs or can change the probability of PTAs also). These variables are taken from French Centre d'Etudes Prospectives et d'Informations Internationales (CEPII). Finally, these variables are all included in the MIDs and PTAs endogenized model (recursive bivariate probit model) because they can have impact on both variables simultaneously.

Apart from that, there are some trade variables only for PTAs model. In the model I use IVFTA with 5 years of lag and is the number of total FTAs between the countries i,j and the rest of the world. The same I do with the variable IVCU with 5 years of lag and is the number of CUs between i,j and the rest of the world. The 5 years lag is a solution for reverse causality on PTAs and gives time to countries to think their strategy for participating in PTAs. These variables seem to be strongly correlated with the signature of PTAs through the economic papers (see Hadjiyiannis et al., 2016) and there is an explanation through the domino theory. When PTAs exist, the non-members have an impact on their preferences and this impact increases the likelihood to include their selves in the existed PTAs for a better welfare.

Political variables

Additionally, there are some political variables that can have impact on MIDs. I control for the sum of the political regime index of the dyad (i,j) from Polity IV score. The policy score is a measure from -10 (full autocracy) to +10 (full democracy). Each political regime index is a dummy variable that takes the value 1 if the policy score is more than 5, or otherwise takes the value 0. Thus, I take the sum of it, that tell us the number of members in the dyad that are more democratic. In the literature, democracies are more related to sign PTAs and decrease the likelihood to initiate a war between them (democratic peace hypothesis, see Hadjiyiannis et al., 2016).

Peaceful years, diplomatic affinity, dyad size, and cross-sectional serial correlation variables

Lastly, I use and some other characteristics that are important determinants of MIDs (for more information see Hadjiyiannis et al., 2016). Firstly, I use the number of peaceful years between the dyad i,j from their last MID, because this variable will affect the likelihood to initiate a war and might decrease this probability. Also, I use the diplomatic affinity between the dyad i,j, like taking a dummy variable if the dyad has a common military alliance and the correlation between the country pair i,j for voting in the General Assembly of the United Nations (UN) about resolutions with 4 years of lag. Apart from that, I use 2 variables that have

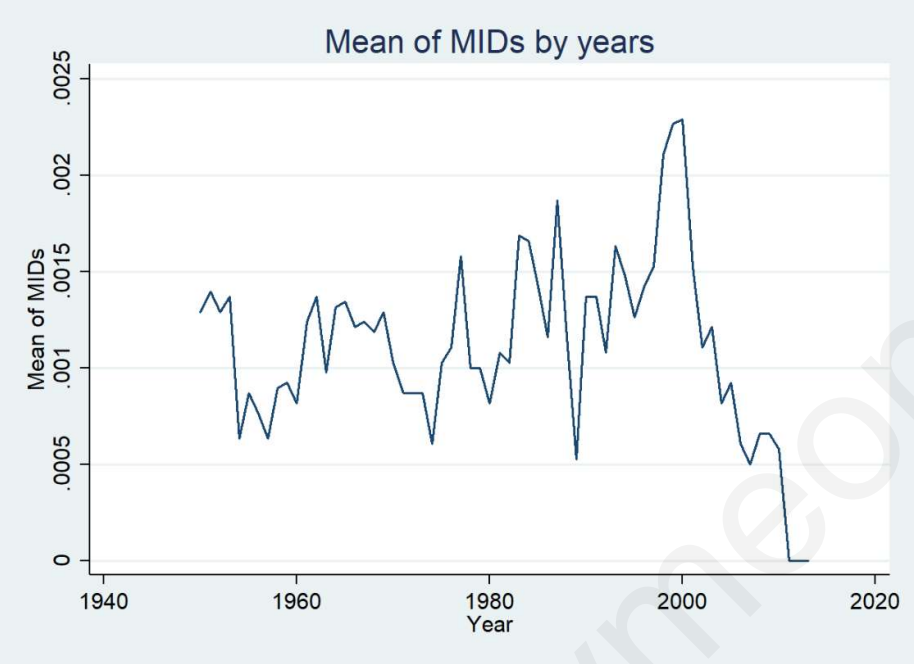
the characteristic for cross-sectional serial correlation on MIDs. I control for the number of other MIDs that are been active in time t by excluding the current MID-dyad i,j and additionally, I control for the minimum distance of MIDs in logarithm measure that are in action in time t from the dyad i,j and excluding the countries i and j from this variable. Finally, I control also for the sum of the size of both countries i and j in logarithm measure (larger countries are having more likelihood to be attacked because they may have essential minorities or cannot defend their selves easily).

3.2 Descriptive analyses

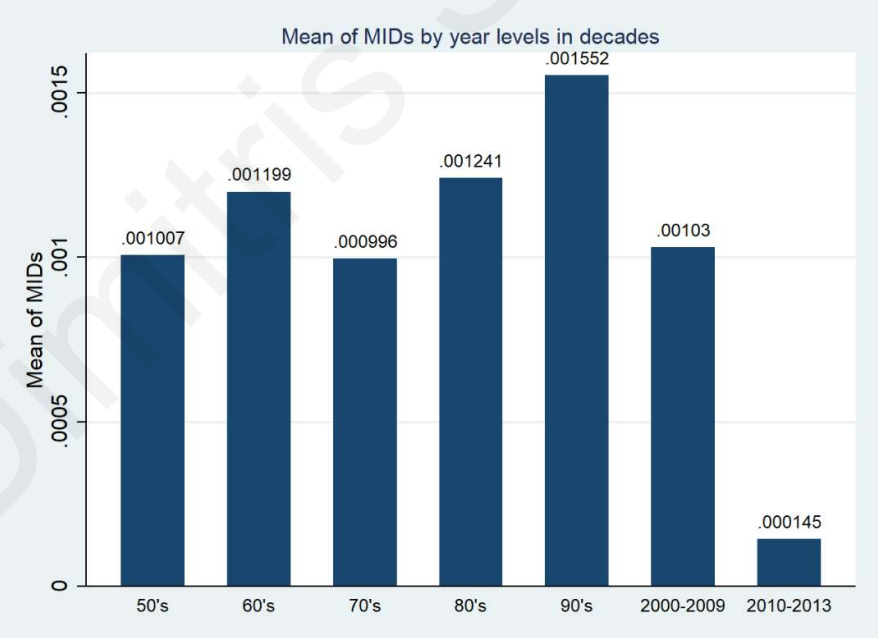
Probability of MIDs and oil

In **Graph 1** I analyze the mean (probability) of MIDs through the years. I conclude that until 2010 we had some interstate disputes but from 2011-2013 there was not any MID, but this does not mean that MIDs will stop initiate. As we are going to see the probability of conflicts is still positive by doing an analyzation per decade in **Graph 2**. We can see that the probability of interstate conflicts is decreasing in 70's and in 2010-2013, but still there is evidence that we have military interstate disputes until the last decade. In continuum, we can see in **Graph 3** that the probability of MIDs is more for dyads that have oil (one country in the dyad or both countries in the dyad which have oil) than dyads that do not have oil. Generally, the most increase in the probability of interstate military dispute is when a dyad has crude oil net exports by about 568.36% and the less increase is when the dyad has crude oil exports by about 120.64%. Additionally, in **Graph 5** we see that the existence of OPEC members in the dyad is increasing the probability of MIDs by 285.65%. The reason for an increase in MIDs from OPEC members, is because OPEC members variable has a strategic oil characteristic as we can see in **Graph 7**, in other words the oil strategic variable is a mixing of crude oil reserves, production, and exports. Concluding, oil has a very large increase on the probability of MIDs and the increase is even existing through decades, the same is true and for the existence of OPEC members within the dyad (see **Graph 4** and **Graph 6** respectively).

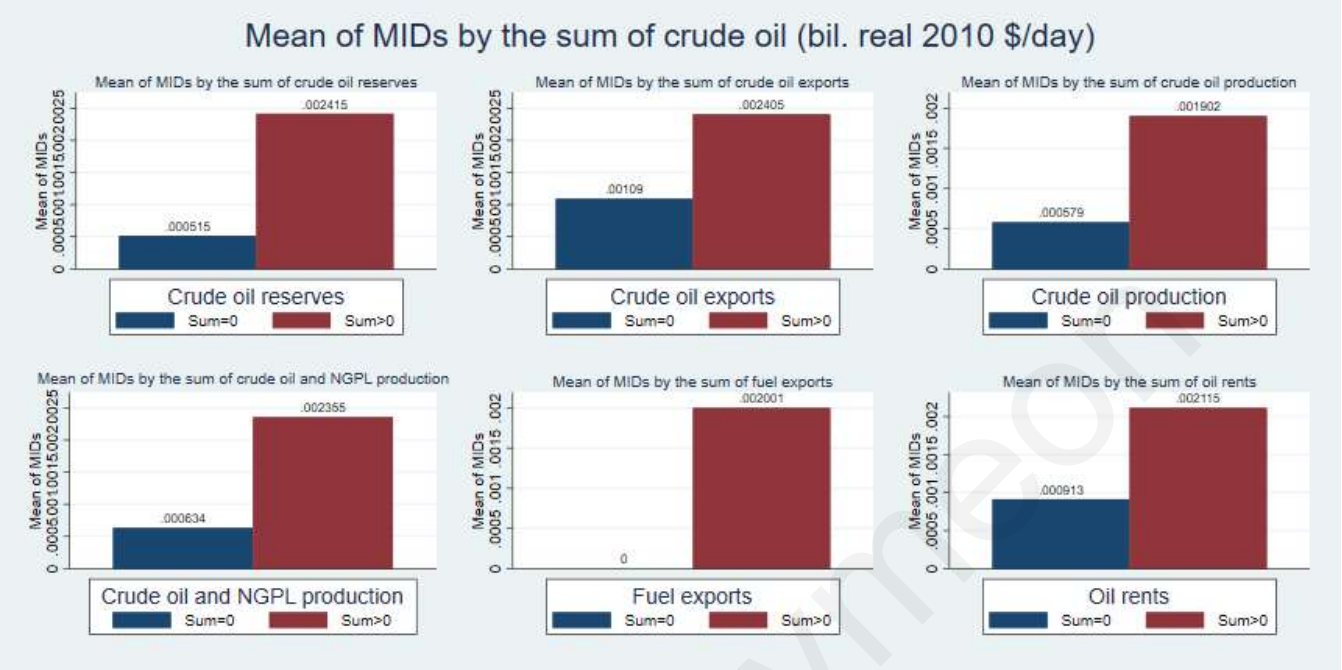
Graph 1: How does the probability of MIDs changed through the years?



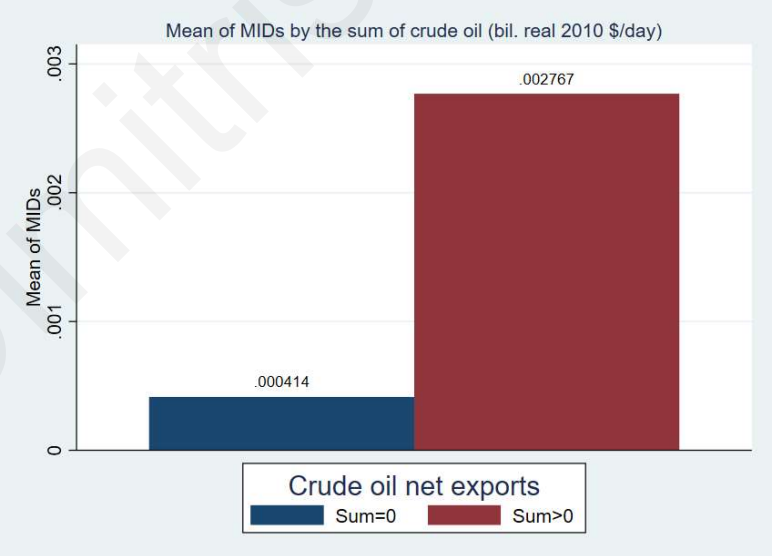
Graph 2: Is the probability of MIDs positive over the decades?



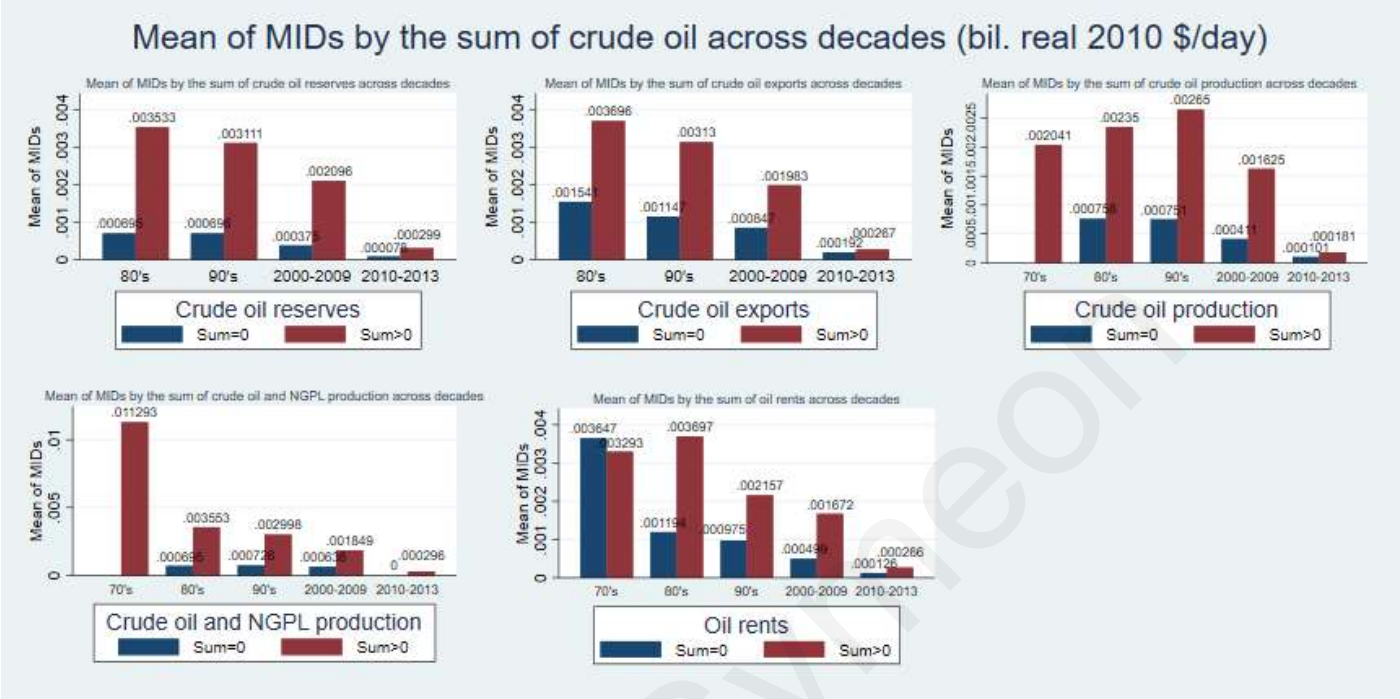
Graph 3: Does the phenomenon of having oil within the dyad increases the probability of MIDs?



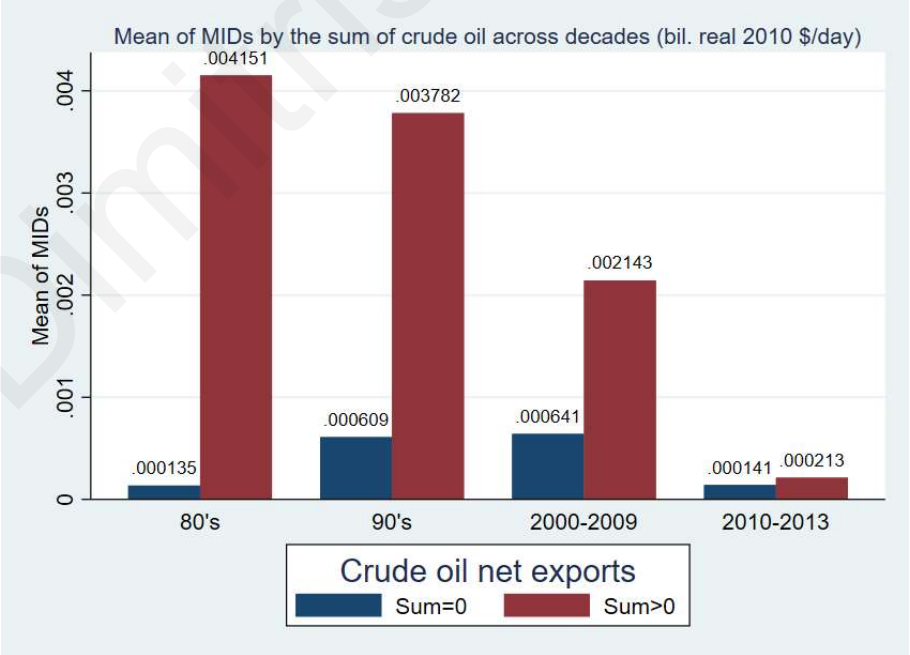
Graph 3 (Continued): Does the phenomenon of having oil within the dyad increases the probability of MIDs?



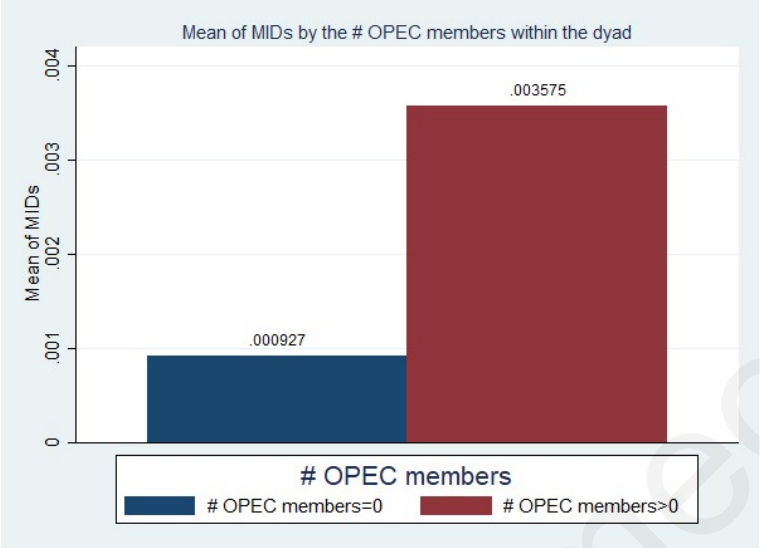
Graph 4: Does the sum of oil have a positive impact on the probability of MIDs through decades?



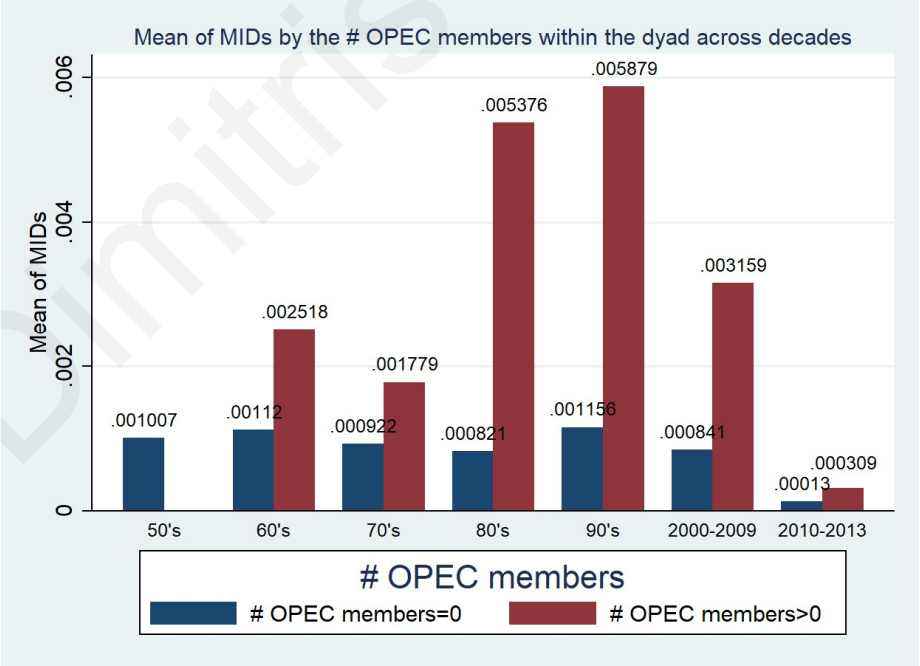
Graph 4 (Continued): Does the sum of oil have a positive impact on the probability of MIDs through decades?



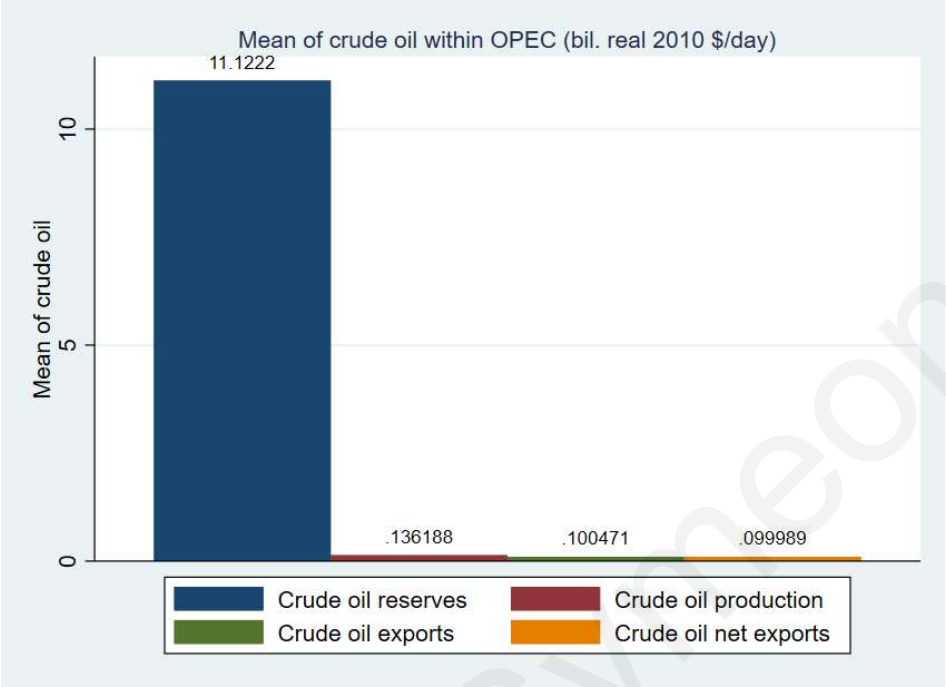
Graph 5: Does the existence of OPEC members within the dyad increases the probability of MIDs?



Graph 6: Does the existence of OPEC members within the dyad increases the probability of MIDs through decades?



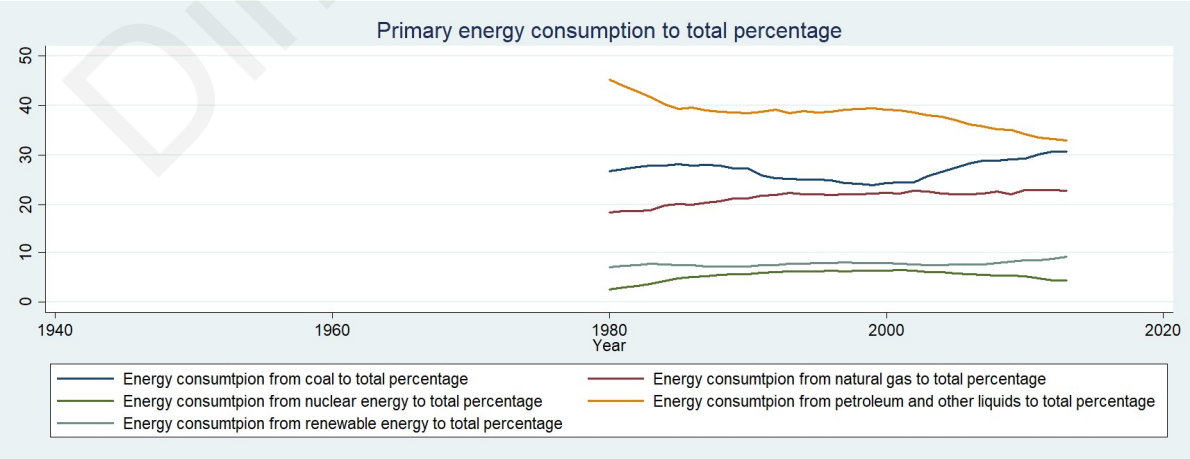
Graph 7: Can OPEC members variable be considered as an oil strategic variable (mixing of crude oil reserves, production, and exports)?



Importance of oil

Oil is very important in energy sector. **Graph 8** compares the percentages of primary energy consumption of coal, natural gas, petroleum, nuclear energy, and renewable energy to total energy consumption in the world. As we can see, petroleum has the highest primary energy consumption to total energy consumption. So, with that evidence we can believe that oil is very demanded for countries and is needed especially for the energy demand.

Graph 8: Is oil the highest consumed product in energy sector?



Notes: Data on primary energy consumption is taken from Independent Statistics and Analysis U.S. Energy Information Administration (EIA).

3.3 Regression Analyses

Model for regression

Through the literature the main model that will predict MID_{ijt} at time t, will be the recursive bivariate probit model which endogenize a bivariate event PTA_{ijt} in the main bivariate event. The predictions will be calculated in Stata v14.0 and the model is the following:

$$Pr\{MID_{ijt}=1\} = \Phi_1[\beta_0 + \beta_1 Sum\ of\ oil_{ijt} + \beta_2 \Pr\{PTA_{ijt}=1\} + \delta H_{ijt} + \varepsilon_1], \quad (1)$$

$$\text{where } \Pr\{PTA_{ijt}=1\} = \Phi_1(\alpha_0 + \nu M_{ijt} + \varepsilon_2), \quad (2)$$

$$A_{ijt} = H_{ijt} + PTA_{ijt}, \quad (3)$$

$$H_{ijt} = N_{ijt} + K_{1_{ijt}} \quad (4)$$

$$\text{and } M_{ijt} = N_{ijt} + K_{2_{ijt}}. \quad (5)$$

On this model I predict the dependent variable $MID_{ijt} = 1$ from the main independent variable $Sum\ of\ oil_{ijt}$, and the other control variables A_{ijt}. In that model, H_{ijt} are the remaining controls of A_{ijt} without PTA_{ijt} and it includes the trade or gravity controls N_{ijt} which are common controls for PTA_{ijt} model as well, plus $K_{1_{ijt}}$ which are some controls that are excluded from PTA_{ijt} model. M_{ijt} includes the trade or gravity controls N_{ijt}, plus $K_{2_{ijt}}$ which are the remaining controls, the number of FTAs at time t-5 and the number of CU at time t-5 agreements already signed between the dyad (i,j) and third countries. $K_{2_{ijt}}$ controls, are included only in the PTA_{ijt} model, is better for the identification of the model and are not correlated with the error term of MID_{ijt} model (see Hadjiyiannis et al., 2016). Finally, $\Phi_1(.)$ is the bivariate normal standard distribution function with a correlation coefficient ρ between the errors (ε_1 and ε_2) of the two models.

Through the literature on oil MIDs, they are using specific thresholds to distinguish the oil exporters, in other words to show that these oil exporters are having significant revenues from oil exports. The thresholds they take are, the export rents to be at least 10% from the national income, the revenues from oil exports to be 1/3 of total exports, or the revenues from net oil exports to be at least 10% of GDP (De Soysa et al., 2011; Colgan, 2010). With these measures, are measuring the economic dependence of a state on natural resources and if it has oil simultaneously. In one other paper they use variables indicating if country i or country j are having oil fields (Caselli et al., 2013). In this paper I try to measure if a country has crude oil by continues variables. I use the measurement of the sum of oil by country i and j. Also, Strüver and Wegenast (2018) use the same measurements of oil variables, but they do not control for short autocorrelation in MIDs' model like this paper and might have bias in their results. I assume that, when a country is having oil, then the probability of MIDs will increase, because oil is a commodity that has a high value for people, they use it almost everywhere, and it has the highest consumption in energy from all the primary (coal, natural gas) and renewable (waves, tides, sunlight, wind, geothermal heat, nuclear heat) commodities. The variable of the sum of crude oil in dyad will show us that a country (i or j) will use it as a strategy to capture the oil from the other country.

Issues with the correlation between the error terms of the two models

In continuum, another main model that will predict MID_{ijt} at time t, will be a pooled probit regression model, which is predicting a binary event. In some cases, the recursive bivariate model has not significant correlation between the error terms (rho) of the main binary model MID_{ijt} and the endogenous variable PTA_{ijt}. Thus, the joint model will not be statistically significant, and I must run the models separately. The model is the following:

$$Pr\{MID_{ijt} = 1\} = \Phi_2(\beta_0 + \beta_1 Sum\ of\ oil_{ijt} + \gamma A_{ijt}), \quad (6)$$

where on this model I predict the dependent variable $MID_{ijt} = 1$ from the main independent variable $Sum\ of\ oil_{ijt}$, and the other control variables A_{ijt}. $\Phi_2(.)$ is the standard normal cumulative distribution function.

Endogeneity

In the model there may be endogeneity between the explanatory variables. The endogeneity issues come through omitted variable bias and through the correlation between the explanatory variables. So, I take the recursive bivariate probit model of Hadjiyiannis et al. (2016) to deal with endogeneity of PTAs in the model. This model is very robust and accountable after all the tests that Hadjiyiannis et al. (2016) made:

i) They used the panel linear regression model with within Fixed-Effects (FE). With this model they controlled for the unobserved time-invariant variables that may affect the dependent and explanatory variables as well.

ii) Also, they tried to use the non-linear probit model with FE, which is preferable, but they could not run it, because of incidental parameters problem (the number of observations is variate within invariant time periods). So, this dynamic model has very strong assumptions to capture unobserved time-invariant variables and is biased. The only solution is to have large T for consistency. Also, they did not run the model with Random-Effects (RE), because this model has very strong assumptions and is not appropriate for the real-world data. RE model assumes that the unobserved dyad heterogeneity is uncorrelated with the explanatory variables. Concluding, they used the Chamberlain-Mundlak approach, where is a model with restriction on the correlation of unobserved time-invariant variables and the explanatory variables. This model uses as explanatory time-invariant variables, the averages of the time-variant variables. And all the other time-invariant variables are included normally in the model. Finally, they used the conditional maximum-likelihood estimator to solve the initial conditions problem.

iii) Lastly, they used instrumental variables (IV) for pooled LPM regressions by controlling for unobserved time-varying effects and find instrumental variables for PTAs (FTAs or Cus) which are endogenous. The instrumental variables are correlated with PTAs, but uncorrelated with MIDs. Thus, they used as instrumental variables the number of FTAs at time t-5 and the number of CUs at time t-5 agreements already signed between the dyad (i,j) and third countries. As a

conclusion, their results were similar with the recursive bivariate probit model in all the 3 different test models, thus is a robust and accountable model.

Also, I will use the $Sum\ of\ oil_{ijt}$ lagged by 11 years and the $\#\ OPEC\ members_{ijt}$ within the dyad to resolve for endogeneity problems with the 10 years lags of MID_{ijt} that are included in the model for autocorrelation issues. In the case that even old information on that variables has impact on MIDs, I lag the oil variables for 12 years and the variable of OPEC members for 11 and 12 years as well, to resolve again for the plausible endogeneity in the model between the variables for autocorrelation and the variables with old information this time.

Empirical issues

Ross (2004) found some empirical issues on resource wealth and conflict studies. Resource exports to GDP might have a reverse causality on civil conflicts and is hard to eliminate it with taking lagged independent variables, because civil wars might begin with low violence for years, before the official initiation of the conflict and the country might be resource dependent. The same might be true for the main independent variable of this paper, but instead I will use lags on the sum of oil variables. In my paper, oil wealth is also suffering from reverse causality with interstate military disputes and endogeneity problem with the included interstate military dispute variables for autocorrelation as well. To overcome these issues, I will include a very old information of oil in the models, and I will use the number of OPEC members as well. MIDs can decrease the production and exports of oil in a country thus and the sum of the dyad. Reserves could be taken from a foreign state in a war, thus reserves might be reduced for the home state, but the sum of reserves in the dyad will be unaffected. Is very difficult and not logical a state to destruct something that wants it for its own advantage. Also, someone could think that reserves might be increased, because production is reducing during war, but this is an indirect effect and not a direct effect. So, to resolve this problem I use the $Sum\ of\ oil_{ijt}$ explanatory variable lagged by 11 years and $\#\ OPEC\ members_{ijt}$. OPEC members cannot be affected from MIDs, but OPEC members can increase the probability of MIDs, because all OPEC countries are exporting oil. Also, Strüver and Wegenast (2018) solve reverse causality problem by taking lags of oil variables. Additionally, some other issues are that missing variables might be important for MIDs, and sometimes is hard to measure them. And finally, some of the inconsistencies through these studies are maybe from the way they code wars or from the way they operate on missing data.

3.4 Results

In all recursive bivariate probit models where I endogenize PTAs in MIDs' model, I use the full sample and full set of controls, except in some models that I present the results without a variable of oil and restrict time to compare my results with Hadjiyiannis et al. (2016) (see **Table 3**). In a lot of cases I use pooled probit models and do not take the joint model, because the Wald test for rho (correlation between the errors of the two models in the recursive bivariate probit regression) does not show statistically significant evidence that PTAs are endogenous in MIDs model. The full period of my models is for 1961-2009, but in many models the period is restricted because of missing data. Additionally, in some of my paper's results the regressions exclude the year 1968, because there are some variables that missing

data in that year. Also, for all models, as extra controls I use a temporal autocorrelation on current MIDs and temporal dependence on PTAs for recursive bivariate probit models by lagged MIDs for 10 years (t-1, t-2,…., t-10). Additionally, I control for any time dependance event on current MIDs and PTAs by year-dummies. Lastly, robust standard errors are clustered by dyads for any within-dyad serial correlation with the error term of our regressions. Finally, in my sample the number of dyad-clusters is not small, so it worth it to use the clustered robust standard errors for more unbiased results instead of using the standard robust errors.

In **Table 3** I present my models without oil variables as I said before. In column 1 I present the results of Hadjiyiannis et al. (2016) (recursive bivariate probit model) so I can compare any changes in the results by using my data in the regressions, which are included in column 2 and column 3 (pooled probit models). All 3 columns have identical variables, but they differ in the period they analyze. In column 2 I have the same variables of column 1 with the same period (1961-2000), and in column 3 I regress for the whole period of my sample (1961-2009). Comparing the column 1, 2 and 3, my results seem to have some differences qualitatively and quantitatively as well. So, it seems that my results are not fully consistent with Hadjiyiannis et al. (2016) results.

Table 3 (Bivariate probit and Pooled probit): What are the impacts on the probability of MIDs without a variable of oil in regression?

	(1)		(2)	(3)
	Results of Hadjiyiannis et al. (2016) paper (Years: 1958-2000)		Results with the variables of the paper (Years: 1961-2000, excluding 1968)	Results with the variables of the paper (Years: 1961-2009, excluding 1968)
VARIABLES	MID	PTA	MID	MID
PTA(d)	−0.3374*		0.141	0.136
	(0.177)		(0.122)	(0.101)
PTFTA	−0.1096		0.613**	0.620***
	(0.204)		(0.265)	(0.212)
PTCU	0.2926**		0.0769	0.00625
	(0.118)		(0.201)	(0.185)
# peaceful years	−0.0058***		-0.00257***	-0.00236***
	(0.001)		(0.000691)	(0.000636)
ln distance	−0.3604***	−1.1204***	-0.396***	-0.394***
	(0.053)	(0.050)	(0.0650)	(0.0643)
Contiguity (d)	0.4778***	−0.1081	0.652***	0.715***
	(0.093)	(0.127)	(0.134)	(0.129)
Zero trade (t−4) (d)	−0.2226***	−0.0122	-0.415***	-0.406***
	(0.078)	(0.076)	(0.135)	(0.129)

UN vote correlation (t−4)	−0.3477***		-0.115	-0.0936
	(0.086)		(0.101)	(0.0953)
Sum of democracy indexes	−0.0285		-0.0552	-0.0322
	(0.044)		(0.0538)	(0.0485)
# other wars in t	0.1039***		-0.336***	-0.352***
	(0.006)		(0.0191)	(0.0195)
ln distance to nearest war in t	0.0377		0.148**	0.165***
	(0.040)		(0.0600)	(0.0573)
Sum ln areas	0.0474***		0.0674***	0.0794***
	(0.012)		(0.0184)	(0.0178)
Alliance active in t (d)	0.0906		-0.0318	-0.0636
	(0.065)		(0.0952)	(0.0898)
Common language (d)	0.1419**	0.0541	0.232***	0.155**
	(0.065)	(0.115)	(0.0771)	(0.0744)
Colonial relationship (d)	0.0974	−0.7357**	0.0919	0.0674
	(0.106)	(0.331)	(0.130)	(0.115)
Common colonizer (d)	0.0218	0.2337*	-0.0795	-0.0719
	(0.089)	(0.130)	(0.102)	(0.106)
# GATT/WTO members in dyad	0.0480	0.4992***	0.144**	0.142**
	(0.050)	(0.079)	(0.0568)	(0.0578)
Sum of FTAs with third countries (t−5)		0.072***		
		(0.006)		
Sum of CUs with third countries (t−5)		0.056***		
		(0.005)		
Constant			17.53***	18.07***
			(1.273)	(1.270)
Observations	126,295		162,862	219,660
Log-pseudolikelihood	−11,471		-1,017.1211	-1,207.4275
Rho	0.159			
Pseudo-R^2			0.6348	0.6425
Time dummies	Yes	Yes	Yes	Yes
Dyadic war lags	Yes	Yes	Yes	Yes
Estimation Method	Bivariate probit		Pooled probit	Pooled probit

Notes: Standard errors clustered by country pair are reported in parentheses with ***, **, and *, respectively, denoting significance at the 1%, 5%, and 10% levels. Time dummies and lagged MIDs (10 years) are not reported.

In **Table 4** I add as extra variable the sum of oil to analyze the impact of an increase in its unit (US billion real 2010 $ per day) on the probability of MIDs. I conclude that an increase by 1 unit in almost all oil variables, crude oil production (see **Table 4**, column 1), the aggregation of crude oil, NGPL and other liquids production (see **Table 4**, column 2), crude oil reserves (see **Table 4**, column 3), crude oil exports (see **Table 4**, column 4), and the aggregation of fuel exports (mineral fuels (coal, oil, natural gas), lubricants, and related

material) (see **Table 4**, column 5) have a positive impact on MIDs by holding other variables constant and is statistically significant at 5% level for oil reserves and 1% level for the other variables. The sum of oil rent does not have a significant impact on MIDs (see **Table 4**, column 6). In column 3, the sum of crude oil reserves is regressed by recursive bivariate probit model and all the other variables are regressed with pooled probit models. Concluding, I can consider that there might be bias within the coefficients for three possible explanations. An older information on the sum of oil might increase the interest to initiate a war or might there is a problem of endogeneity and reverse causality by MIDs. States need old information to take an efficient strategy of a MID activity. Lastly, someone could think that oil reserves in the dyad might not initiate wars or have less impact on MIDs than other variables, because oil exploration has a larger cost (risk in prices and in quantities of exploration as well) for a war than production or exports of oil. But as it seems oil reserves are also attracting states to initiate wars between them and have the least impact as I predicted.

Table 4 (Bivariate probit and Pooled probit): What are the impacts on the probability of MIDs for every extra unit from the sum of oil within the dyad?

	(1)	(2)	(3)		(4)	(5)
	Results by adding crude oil production (Years: 1974-2009)	Results by adding crude oil, NGPL and other liquids production (Years: 1974-2009)	Results by adding crude oil reserves (Years: 1981-2009)		Results by adding crude oil exports (Years: 1981-2009)	Results by adding fuel exports (mineral fuels, lubricants, and related material) (Years: 1963-2009, excluding 1968)
VARIABLES	MID	MID	MID	PTA	MID	MID
PTA (d)	-0.0172	-0.0163	-0.413		-0.0218	-0.0603
	(0.109)	(0.109)	(0.269)		(0.110)	(0.111)
PTFTA	0.408*	0.378	0.427*		0.369	0.423*
	(0.239)	(0.245)	(0.235)		(0.246)	(0.256)
PTCU	-0.0468	-0.0452	-0.0362		-0.0647	-0.295
	(0.222)	(0.221)	(0.221)		(0.221)	(0.239)
# peaceful years	-0.00211***	-0.00212***	-0.00270***		-0.00216***	-0.00325***
	(0.000746)	(0.000743)	(0.000801)		(0.000746)	(0.000793)
ln distance	-0.413***	-0.409***	-0.499***	-1.076***	-0.407***	-0.363***
	(0.0818)	(0.0812)	(0.101)	(0.0285)	(0.0812)	(0.0762)
Contiguity (d)	0.841***	0.840***	0.696***	-0.115	0.836***	0.721***
	(0.153)	(0.154)	(0.139)	(0.113)	(0.154)	(0.148)
Zero trade (t−4) (d)	-0.583***	-0.598***	-0.784***	-0.223***	-0.603***	-0.467**

	(0.193)	(0.193)	(0.289)	(0.0675)	(0.193)	(0.219)
UN vote correlation (t−4)	0.0259	0.0286	0.0335		0.0270	-0.0355
	(0.130)	(0.129)	(0.135)		(0.129)	(0.117)
Sum of democracy indexes	0.0865	0.0845	0.0742		0.0828	-0.00934
	(0.0595)	(0.0599)	(0.0600)		(0.0592)	(0.0611)
# otherwars in t	-0.366***	-0.367***	-0.367***		-0.367***	-0.339***
	(0.0261)	(0.0261)	(0.0294)		(0.0261)	(0.0217)
ln distance to nearest war in t	0.223***	0.231***	0.249***		0.226***	0.200***
	(0.0784)	(0.0785)	(0.0769)		(0.0783)	(0.0681)
Sum ln areas	0.0681***	0.0678***	0.0549***		0.0731***	0.0460**
	(0.0216)	(0.0216)	(0.0202)		(0.0215)	(0.0218)
Alliance active in t (d)	-0.124	-0.124	-0.193*		-0.118	-0.178*
	(0.113)	(0.113)	(0.117)		(0.113)	(0.0971)
Common language (d)	0.191**	0.194**	0.270***	0.398***	0.193**	0.159*
	(0.0913)	(0.0917)	(0.0898)	(0.0629)	(0.0912)	(0.0960)
Colonial relationship (d)	-0.0650	-0.0617	-0.102	-0.388**	-0.0609	0.118
	(0.135)	(0.134)	(0.137)	(0.191)	(0.134)	(0.135)
Common colonizer (d)	0.0812	0.0807	-0.0258	-0.190**	0.0726	-0.0699
	(0.118)	(0.118)	(0.119)	(0.0802)	(0.117)	(0.146)
# GATT/WTO members in dyad	0.104	0.108	0.141	0.488***	0.0988	0.137*
	(0.0742)	(0.0741)	(0.0872)	(0.0675)	(0.0745)	(0.0817)
Sum of FTAs with third countries (t−5)				0.0426***		
				(0.00222)		
Sum of CUs with third countries (t−5)				0.0239***		
				(0.00188)		
Sum of crude oil production	0.881***					
	(0.266)					
Sum of crude oil and NGPL production		0.785***				
		(0.247)				
Sum of crude oil reserves			0.00883**			
			(0.00444)			
Sum of crude oil exports					0.918***	
					(0.287)	
Sum of fuel exports						0.935***
						(0.260)
Sum of oil rents						
Constant	14.05***	14.00***	19.42***	5.334***	18.74***	31.97***
	(1.392)	(1.385)	(1.796)	(0.263)	(1.685)	(2.227)
Observations	159,013	161,141	146,284	146,284	161,141	136,735
Log-pseudolikelihood	-751.43537	-753.72364	-20,591.521		-754.18568	-785.77294
Rho			0.281***			
Pseudo-R^2	0.6777	0.6773			0.6771	0.6414

Time dummies	Yes	Yes	Yes	Yes	Yes	Yes
Dyadic war lags	Yes	Yes	Yes	Yes	Yes	Yes
Estimation Method	Pooled Probit	Pooled Probit	Bivariate Probit		Pooled Probit	Pooled Probit

Notes: All oil variables are measured in US billion real 2010 $ per day. Standard errors clustered by country pair are reported in parentheses with ***, **, and *, respectively, denoting significance at the 1%, 5%, and 10% levels. Time dummies and lagged MIDs (10 years) are not reported.

Table 4 (Bivariate probit and Pooled probit) (Continued): What are the impacts on the probability of MIDs for every extra unit from the sum of oil within the dyad?

	(6)
	Results by adding oil rents (Years: 1971-2009)
VARIABLES	MID
PTA (d)	0.0432
	(0.107)
PTFTA	0.402*
	(0.238)
PTCU	-0.0677
	(0.198)
# peaceful years	-0.00266***
	(0.000751)
ln distance	-0.371***
	(0.0752)
Contiguity (d)	0.784***
	(0.144)
Zero trade (t−4) (d)	-0.540***
	(0.156)
UN vote correlation (t−4)	-0.0368
	(0.126)
Sum of democracy indexes	0.0297
	(0.0560)
# otherwars in t	-0.364***
	(0.0266)
ln distance to nearest war in t	0.171**
	(0.0670)
Sum ln areas	0.0637***
	(0.0204)
Alliance active in t (d)	-0.0813
	(0.0998)
Common language (d)	0.157*
	(0.0846)

Colonial relationship (d)	-0.0836
	(0.120)
Common colonizer (d)	0.0227
	(0.114)
# GATT/WTO members in dyad	0.107
	(0.0683)
Sum of FTAs with third countries (t−5)	
Sum of CUs with third countries (t−5)	
Sum of crude oil production	
Sum of crude oil and NGPL production	
Sum of crude oil reserves	
Sum of crude oil exports	
Sum of fuel exports	
Sum of oil rents	0.390
	(0.325)
Constant	14.31***
	(1.391)
Observations	172,421
Log-pseudolikelihood	-887.53729
Rho	
Pseudo-R^2	0.6486
Time dummies	Yes
Dyadic war lags	Yes
Estimation Method	Pooled Probit

Notes: All oil variables are measured in US billion real 2010 $ per day. Standard errors clustered by country pair are reported in parentheses with ***, **, and *, respectively, denoting significance at the 1%, 5%, and 10% levels. Time dummies and lagged MIDs (10 years) are not reported.

Lag oil variables

In **Table 5** I lag the sum of oil variables for 11 years to solve the reverse causality issue and endogeneity problem with MIDs at time t and the variables for temporal autocorrelation. Additionally, with lags we can capture the impact of old information on MIDs, thus I also lag the sum of oil reserves to have and an empirical result on that consideration. In the model I lag MIDs by 10 years, so to resolve endogeneity and reverse causality simultaneity problem, the

sum of oil in dyad must be lagged by 11 years. All columns are having the full sample with 11 years of lag, but in column 7 I regress the sample for non-OPEC members. As we see, an increase by 1 unit in the sum of crude oil production (t − 11) (see **Table 5**, column 1), the aggregation of crude oil, NGPL and other liquids production (t − 11) (see **Table 5**, column 2), crude oil exports (t − 11) (see **Table 5**, column 4) and oil rents (t − 11) (see **Table 5**, column 6) have a statistically significant increase on the probability of MIDs at 10% level. Regarding the other variables are not having a statistically significant impact on the probability of MIDs and only the sum of crude oil exports is running on recursive bivariate probit model because of the statistically significant rho. Concluding, the resolution of reverse causality and endogeneity problems have decreased the significance and increased the magnitude of the impact of the sum of oil variables on the probability of MIDs compared to previous models without lagged oil variables, but also have made the impact of the sum of oil rent on MIDs' probability to be significant (see **Table 4**). As for the aggregate fuel exports' results, the explanation might be that there is less demand on fuels generally, especially nowadays where the renewable energy is starting to have an important development in our world. Also, the sum of oil reserves has not a significant impact on the probability of MIDs as I predicted. Lastly, I also regressed the sum of oil variables on non-OPEC members but only an increase in the sum of oil rents is statistically increasing the probability of MIDs at 10% level (see **Table 5**, column 7). In the table, I do not show the results of the other oil variables which do not have significant results for non-OPEC members, to save space.

Table 5 (Bivariate probit and Pooled probit): What are the impacts on the probability of MIDs for every extra unit from the sum of oil within the dyad by lagged years?

	(1)	(2)	(3)	(4)		(5)
	Results by adding crude oil production (t−11) (Years: 1982-2009)	Results by adding crude oil, NGPL and other liquids production (t−11) (Years: 1982-2009)	Results by adding crude oil reserves (t−11) (Years: 1992-2009)	Results by adding crude oil exports (t−11) (Years: 1981-2009)		Results by adding fuel exports (mineral fuels, lubricants, and related material) (t−11) (Years: 1974-2009)
VARIABLES	MID	MID	MID	MID	PTA	MID
PTA (d)	-0.0494	-0.0493	-0.0733	-0.401		-0.193
	(0.127)	(0.127)	(0.151)	(0.251)		(0.121)
PTFTA	0.292	0.273	0.440	0.296		0.472
	(0.266)	(0.268)	(0.301)	(0.266)		(0.303)
PTCU	-0.107	-0.114	-0.171	-0.105		-0.0956
	(0.257)	(0.257)	(0.345)	(0.256)		(0.285)
# peaceful years	-0.00167*	-0.00173**	-0.00142	-0.00183**		-0.00249**

	(0.000868)	(0.000860)	(0.00102)	(0.000865)		(0.000969)
ln distance	-0.480***	-0.472***	-0.515***	-0.540***	-1.096***	-0.462***
	(0.0877)	(0.0875)	(0.110)	(0.101)	(0.0322)	(0.0824)
Contiguity (d)	0.765***	0.764***	0.770***	0.786***	-0.0261	0.664***
	(0.179)	(0.179)	(0.204)	(0.181)	(0.133)	(0.157)
Zero trade (t−4) (d)	-0.698***	-0.698***	-0.611*	-0.714***	-0.233***	-0.356
	(0.261)	(0.260)	(0.320)	(0.255)	(0.0701)	(0.268)
UN vote correlation (t−4)	0.0102	0.0143	0.113	-0.00353		0.0992
	(0.152)	(0.149)	(0.176)	(0.148)		(0.166)
Sum of democracy indexes	0.0574	0.0554	0.0641	0.0534		0.0598
	(0.0694)	(0.0695)	(0.0844)	(0.0683)		(0.0733)
# otherwars in t	-0.372***	-0.373***	-0.443***	-0.368***		-0.387***
	(0.0359)	(0.0358)	(0.0372)	(0.0355)		(0.0363)
ln distance to nearest war in t	0.229***	0.234***	0.237***	0.212**		0.267***
	(0.0845)	(0.0838)	(0.0861)	(0.0835)		(0.0928)
Sum ln areas	0.0807***	0.0795***	0.0948***	0.0827***		0.0590**
	(0.0245)	(0.0244)	(0.0293)	(0.0238)		(0.0242)
Alliance active in t (d)	-0.207	-0.212	-0.128	-0.190		-0.357***
	(0.154)	(0.155)	(0.179)	(0.152)		(0.109)
Common language (d)	0.219**	0.226**	0.206*	0.240**	0.329***	0.225**
	(0.111)	(0.111)	(0.121)	(0.107)	(0.0653)	(0.101)
Colonial relationship (d)	-0.139	-0.139	-0.139	-0.145	-0.287*	-0.0125
	(0.153)	(0.151)	(0.180)	(0.150)	(0.172)	(0.150)
Common colonizer (d)	-0.00948	-0.0125	-0.00796	-0.0714	-0.126	-0.101
	(0.151)	(0.151)	(0.171)	(0.147)	(0.0790)	(0.152)
# GATT/WTO members in dyad	0.253**	0.256**	0.198	0.299**	0.421***	-0.0220
	(0.121)	(0.121)	(0.138)	(0.119)	(0.0801)	(0.0966)
Sum of FTAs with third countries (t−5)					0.0393***	
					(0.00206)	
Sum of CUs with third countries (t−5)					0.0201***	
					(0.00181)	
Sum of crude oil production (t−11)	1.089*					
	(0.653)					
Sum of crude oil and NGPL production (t−11)		1.104*				
		(0.646)				
Sum of crude oil reserves (t−11)			0.00759			
			(0.00933)			
Sum of crude oil exports (t−11)				1.250*		
				(0.287)		
Sum of fuel exports (t−11)						0.427
						(0.691)
Sum of oil rents (t−11)						

Constant	14.33***	14.29***	41.53***	33.39***	5.629***	21.89***
	(1.757)	(1.749)	(3.598)	(3.110)	(0.297)	(2.301)
Observations	102,003	104,350	85,485	104,254	104,254	89,241
Log-pseudolikelihood	-473.26895	-473.97631	-379.98103	-17,821.108		-522.79532
Rho				0.233***		
Pseudo-R^2	0.6743	0.6748	0.6950			0.6758
Sample	Full	Full	Full	Full		Full
Time dummies	Yes	Yes	Yes	Yes	Yes	Yes
Dyadic war lags	Yes	Yes	Yes	Yes	Yes	Yes
Estimation Method	Pooled Probit	Pooled Probit	Pooled Probit	Bivariate Probit		Pooled Probit

Notes: All oil variables are measured in US billion real 2010 $ per day. Standard errors clustered by country pair are reported in parentheses with ***, **, and *, respectively, denoting significance at the 1%, 5%, and 10% levels. Time dummies and lagged MIDs (10 years) are not reported. All columns are having full sample, except column 7 that has the sample of non-OPEC members.

Table 5 (Bivariate probit and Pooled probit) (Continued): What are the impacts on the probability of MIDs for every extra unit from the sum of oil within the dyad by lagged years?

	(6)	(7)
	Results by adding oil rents (t−11) (Years: 1982-2009)	Results by adding oil rents (t−11) (Years: 1982-2009)
VARIABLES	MID	MID
PTA (d)	-0.0256	-0.0426
	(0.124)	(0.141)
PTFTA	0.0338	-0.0485
	(0.327)	(0.376)
PTCU	0.0403	0.184
	(0.228)	(0.238)
# peaceful years	-0.00252***	-0.00271***
	(0.000853)	(0.000985)
ln distance	-0.408***	-0.391***
	(0.0818)	(0.0880)
Contiguity (d)	0.710***	0.711***
	(0.155)	(0.171)
Zero trade (t−4) (d)	-1.328***	-1.304***
	(0.345)	(0.358)
UN vote correlation (t−4)	0.0479	0.105
	(0.145)	(0.166)
Sum of democracy indexes	0.109	0.0513

	(0.0701)	(0.0824)
# otherwars in t	-0.363***	-0.349***
	(0.0322)	(0.0363)
ln distance to nearest war in t	0.149*	0.0655
	(0.0792)	(0.0858)
Sum ln areas	0.0836***	0.0719***
	(0.0217)	(0.0229)
Alliance active in t (d)	-0.162	-0.135
	(0.123)	(0.134)
Common language (d)	0.361***	0.418***
	(0.102)	(0.106)
Colonial relationship (d)	-0.105	-0.0969
	(0.132)	(0.133)
Common colonizer (d)	-0.101	-0.0817
	(0.163)	(0.185)
# GATT/WTO members in dyad	0.198*	0.263*
	(0.116)	(0.154)
Sum of FTAs with third countries (t−5)		
Sum of CUs with third countries (t−5)		
Sum of crude oil production (t−11)		
Sum of crude oil and NGPL production (t−11)		
Sum of crude oil reserves (t−11)		
Sum of crude oil exports (t−11)		
Sum of fuel exports (t−11)		
Sum of oil rents (t−11)	1.151*	4.295*
	(0.679)	(2.340)
Constant	26.31***	25.38***
	(2.582)	(2.943)
Observations	117,167	99,402
Log-pseudolikelihood	-572.71944	-446.37227
Rho		
Pseudo-R^2	0.6751	0.6903
Sample	Full	Non-OPEC members

Time dummies	Yes	Yes
Dyadic war lags	Yes	Yes
Estimation Method	Pooled Probit	Pooled Probit

Notes: All oil variables are measured in US billion real 2010 $ per day. Standard errors clustered by country pair are reported in parentheses with ***, **, and *, respectively, denoting significance at the 1%, 5%, and 10% levels. Time dummies and lagged MIDs (10 years) are not reported. All columns are having full sample, except column 7 that has the sample of non-OPEC members.

In **Table 6** I present the sum of oil in dyad but lagged at 12 years. In this table all the models are pooled probit regressions, because in recursive bivariate probit model the rho was not significant. Across the analysis I consider that old information is very important for MIDs' strategy as to take the decision to initiate a MID or avoid taking an action of a MID. Thus, in **Table 6**, the sum of oil in dyad is lagged by 12 years just to ensure that the impact of older information (older than 11 years) matters as well on the probability of MIDs at time t, and to resolve for the endogeneity that may exist with the variables of autocorrelation as we mentioned before (if variables with 11 lagged years are having impact on MIDs, then these variables will be endogenous with the variables of autocorrelation). Following the results, none of the oil variables with older information is significant determinant for the probability of MIDs. So, may only the current information of crude oil have a robust impact on the probability of MIDs.

Table 6 (Pooled probit): What are the impacts on the probability of MIDs for every extra unit from the sum of oil within the dyad by lagged years?

	(1)	(2)	(3)	(4)	(5)	(6)
	Results by adding crude oil production (t−12) (Years: 1986-2009)	Results by adding crude oil, NGPL and other liquids production (t−12) (Years: 1986-2009)	Results by adding crude oil reserves (t−12) (Years: 1993-2009)	Results by adding crude oil exports (t−12) (Years: 1993-2009)	Results by adding fuel exports (mineral fuels, lubricants, and related material) (t−12) (Years: 1975-2009)	Results by adding oil rents (t−12) (Years: 1983-2009)
VARIABLES	MID	MID	MID	MID	MID	MID
PTA (d)	-0.0310	-0.0276	-0.0461	-0.0104	-0.158	-0.0154
	(0.136)	(0.136)	(0.148)	(0.139)	(0.127)	(0.126)
PTFTA	0.356	0.345	0.463	0.342	0.492	0.0566
	(0.300)	(0.302)	(0.300)	(0.300)	(0.304)	(0.338)
PTCU	-0.188	-0.187	-0.0940	-0.192	-0.0110	0.0767
	(0.297)	(0.296)	(0.348)	(0.298)	(0.298)	(0.236)
# peaceful years	-0.00156*	-0.00159*	-0.00146	-0.00167*	-0.00227**	-0.00264***
	(0.000918)	(0.000913)	(0.00103)	(0.000928)	(0.000998)	(0.000892)
ln distance	-0.504***	-0.498***	-0.508***	-0.479***	-0.429***	-0.403***
	(0.0985)	(0.0984)	(0.114)	(0.0993)	(0.0810)	(0.0862)

Contiguity (d)	0.756***	0.756***	0.750***	0.783***	0.696***	0.661***
	(0.192)	(0.193)	(0.208)	(0.198)	(0.149)	(0.161)
Zero trade (t−4) (d)	-0.624**	-0.623**	-0.594*	-0.624**	-0.446	-1.307***
	(0.274)	(0.272)	(0.306)	(0.269)	(0.315)	(0.351)
UN vote correlation (t−4)	0.0648	0.0722	0.149	0.0369	0.183	0.132
	(0.169)	(0.167)	(0.183)	(0.166)	(0.167)	(0.151)
Sum of democracy indexes	0.0507	0.0490	0.0424	0.0468	0.105	0.132*
	(0.0782)	(0.0783)	(0.0885)	(0.0778)	(0.0736)	(0.0765)
# otherwars in t	-0.438***	-0.439***	-0.440***	-0.438***	-0.406***	-0.378***
	(0.0342)	(0.0342)	(0.0368)	(0.0341)	(0.0368)	(0.0302)
ln distance to nearest war in t	0.237***	0.242***	0.247***	0.234***	0.326***	0.166**
	(0.0864)	(0.0862)	(0.0890)	(0.0868)	(0.0915)	(0.0828)
Sum ln areas	0.0821***	0.0812***	0.0977***	0.0902***	0.0531**	0.0854***
	(0.0267)	(0.0267)	(0.0298)	(0.0263)	(0.0239)	(0.0227)
Alliance active in t (d)	-0.150	-0.156	-0.0833	-0.137	-0.247**	-0.165
	(0.164)	(0.165)	(0.179)	(0.163)	(0.113)	(0.127)
Common language (d)	0.227*	0.232*	0.146	0.221*	0.170*	0.399***
	(0.126)	(0.126)	(0.128)	(0.124)	(0.0984)	(0.105)
Colonial relationship (d)	-0.143	-0.142	-0.0615	-0.129	0.0283	-0.0969
	(0.165)	(0.164)	(0.185)	(0.168)	(0.152)	(0.136)
Common colonizer (d)	0.0151	0.0120	0.0236	-0.0167	0.0677	-0.0257
	(0.170)	(0.170)	(0.184)	(0.172)	(0.151)	(0.164)
# GATT/WTO members in dyad	0.146	0.149	0.257	0.174	-0.105	0.140
	(0.121)	(0.122)	(0.157)	(0.119)	(0.0970)	(0.116)
Sum of crude oil production (t−12)	0.602					
	(0.608)					
Sum of crude oil and NGPL production (t−12)		0.622				
		(0.603)				
Sum of crude oil reserves (t−12)			0.00987			
			(0.00975)			
Sum of crude oil exports (t−12)				0.839		
				(0.610)		
Sum of fuel exports (t−12)					0.838	
					(0.634)	
Sum of oil rents (t−12)						0.822
						(0.612)
Constant	17.78***	17.72***	31.10***	31.18***	14.79***	25.68***
	(1.754)	(1.743)	(3.037)	(2.774)	(1.821)	(2.338)
Observations	96,256	98,382	79,635	98,286	85,148	111,392
Log-pseudolikelihood	-432.11184	-432.55621	-365.95977	-428.56404	-498.90418	-534.70388
Pseudo-R^2	0.6795	0.6801	0.6958	0.6815	0.6839	0.6822
Time dummies	Yes	Yes	Yes	Yes	Yes	Yes
Dyadic war lags	Yes	Yes	Yes	Yes	Yes	Yes

Estimation Method	Pooled Probit	Pooled Probit	Pooled Probit	Pooled Probit	Pooled Probit	Pooled Probit

Notes: All oil variables are measured in US billion real 2010 $ per day. Standard errors clustered by country pair are reported in parentheses with ***, **, and *, respectively, denoting significance at the 1%, 5%, and 10% levels. Time dummies and lagged MIDs (10 years) are not reported.

Sum of crude oil net exports as explanatory variable

In **Table 7** I present the impact of the current (see column 1) and old information (11 and 12 lagged years in column 2 and 3 respectively) of the sum of crude oil net exports on MIDs. The impact of crude oil exports might suffer from omitted bias issues with the error term, because a state may be based on imports of oil from other states sometimes and decrease the impact on the probability of MIDs. Thus, I take crude oil net exports as explanatory variable in my model which will have a clearer impact on the probability of MIDs. As we can see, an increase by 1 unit of the dynamic information (11 and 12 lagged years as well) of the sum of crude oil net exports, has a positive impact on the probability of MIDs and is statistically significant at 5% level. As for the impact of the sum of crude oil net exports (t-11) (see **Table 7**, column 2), has more magnitude than the sum of crude oil exports at time t (see **Table 5**, column 4) but it has less magnitude than the sum of crude oil net exports (t-12) (see **Table 7**, column 1).

Table 7 (Pooled probit): What are the impacts on the probability of MIDs for every extra unit from the sum of oil within the dyad by without and with lagged years?

	(1)	(2)	(3)
	Results by adding crude oil net exports (Years: 1981-2009)	Results by adding crude oil net exports (t−11) (Years: 1992-2009)	Results by adding crude oil net exports (t−12) (Years: 1993-2009)
VARIABLES	MID	MID	MID
PTA (d)	-0.0192	-0.0238	0.00105
	(0.109)	(0.128)	(0.138)
PTFTA	0.349	0.248	0.321
	(0.248)	(0.271)	(0.303)
PTCU	-0.0656	-0.107	-0.182
	(0.222)	(0.260)	(0.301)
# peaceful years	-0.00219***	-0.00197**	-0.00182*
	(0.000756)	(0.000892)	(0.000949)
ln distance	-0.403***	-0.449***	-0.474***
	(0.0814)	(0.0898)	(0.100)
Contiguity (d)	0.825***	0.772***	0.771***
	(0.154)	(0.184)	(0.199)
Zero trade (t−4) (d)	-0.614***	-0.723***	-0.633**
	(0.193)	(0.259)	(0.269)

UN vote correlation (t−4)	0.0347	-0.00504	0.0432
	(0.130)	(0.150)	(0.166)
Sum of democracy indexes	0.0853	0.0663	0.0604
	(0.0595)	(0.0711)	(0.0789)
# otherwars in t	-0.366***	-0.374***	-0.439***
	(0.0261)	(0.0360)	(0.0341)
ln distance to nearest war in t	0.219***	0.219***	0.232***
	(0.0776)	(0.0844)	(0.0867)
Sum ln areas	0.0759***	0.0923***	0.0907***
	(0.0215)	(0.0245)	(0.0265)
Alliance active in t (d)	-0.118	-0.198	-0.147
	(0.113)	(0.152)	(0.162)
Common language (d)	0.187**	0.203*	0.204
	(0.0914)	(0.110)	(0.124)
Colonial relationship (d)	-0.0623	-0.131	-0.130
	(0.134)	(0.154)	(0.168)
Common colonizer (d)	0.0647	-0.0466	-0.00901
	(0.116)	(0.151)	(0.170)
# GATT/WTO members in dyad	0.0965	0.284**	0.196*
	(0.0743)	(0.115)	(0.119)
Sum of crude oil net exports	0.650**		
	(0.324)		
Sum of crude oil net exports (t−11)		1.429**	
		(0.597)	
Sum of crude oil net exports (t−12)			1.059**
			(0.512)
Constant	18.71***	32.95***	31.26***
	(1.682)	(3.181)	(2.773)
Observations	161,141	104,254	98,286
Log-pseudolikelihood	-754.75312	-468.90565	-427.53338
Pseudo-R^2	0.6768	0.6769	0.6823
Time dummies	Yes	Yes	Yes
Dyadic war lags	Yes	Yes	Yes
Estimation Method	Pooled Probit	Pooled Probit	Pooled Probit

Notes: All oil variables are measured in US billion real 2010 $ per day. Standard errors clustered by country pair are reported in parentheses with ***, **, and *, respectively, denoting significance at the 1%, 5%, and 10% levels. Time dummies and lagged MIDs (10 years) are not reported.

The number of OPEC members within the dyad as explanatory variable

Finally, in **Table 8** I present the impact of the number of OPEC members within the dyad on the probability of MIDs and all columns are pooled probit models. This variable has a

lot of benefits on my regressions. Firstly, it is a variable that can be determined as a strategy on oil reserves, production, and exports, because countries with a mixture of these 3 oil variables will be included in OPEC members. Secondly, this variable has not endogeneity or reverse causality issues with the explanatory variables or MIDs (MIDs do not affect OPEC members). Thirdly, this variable gives us the opportunity of more asymptotically unbiased and consistent results, because of the higher number on observations. And fourthly, this variable is more accountable than the other measures of oil, because there are no miscalculations in the data, like oil reserves that make prediction on them and there is no fake data like in the measures of oil that in some cases states want to hide their oil information for their own advantage. Also, someone could think that might there be omitted variable bias in the results, because the sum of crude oil net exports is increasing the probability of MIDs but the same time it might increase the number of OPEC members in dyad. But I do not believe that is so easy for that problem to exist, because OPEC members are like a mixture of oil reserves, production, and exports. As we see in column 1, every extra OPEC member within the dyad increases the probability of MIDs and is statistically significant at 1% level. In column 2 the number of OPEC members in dyad is lagged by 11 years to show that old information determines MIDs. It seems that the number of OPEC members within the dyad (t-11) is increasing the probability of MIDs and is statistically significant at 1% level. Additionally, as I did in **Table 7** by lagging the oil variables for 12 years, I do the same in **Table 8** in column 3 just to ensure if there is any impact from older information on the probability of MIDs onset and to resolve for endogeneity again (an old information by 11 lagged years might have endogeneity issues with the variables of autocorrelation). I find that the number of OPEC members within the dyad (t-12) is increasing the probability of MIDs and is statistically significant at 1% level. I conclude that the impact of the number of OPEC members within the dyad at time t as well at time t-11 and t-12 is very robust on the probability of MIDs and the magnitude on the impact at time t-11 is higher than time t, and at time t-12 is even higher. Lastly, the magnitude on the impact of the number of OPEC members within the dyad at time t, t-11, and t-12 is lower than the impact of the sum of oil variables (see **Table 4-Table 7**).

Table 8 (Pooled probit): What are the impacts on the probability of MIDs for every extra OPEC member within the dyad by without lagged and with lagged years?

	(1)	(2)	(3)
	Results by adding # OPEC members in dyad (Years: 1961-2009, excluding 1968)	Results by adding # OPEC members in dyad (t−11) (Years: 1962-2009, excluding 1968)	Results by adding # OPEC members in dyad (t−12) (Years: 1963-2009, excluding 1968)
VARIABLES	MID	MID	MID
PTA (d)	0.158	0.159	0.142

	(0.102)	(0.104)	(0.104)
PTFTA	0.724***	0.721***	0.762***
	(0.220)	(0.221)	(0.219)
PTCU	0.0767	0.0741	0.0769
	(0.186)	(0.192)	(0.197)
# peaceful years	-0.00251***	-0.00243***	-0.00246***
	(0.000644)	(0.000641)	(0.000647)
ln distance	-0.405***	-0.410***	-0.411***
	(0.0634)	(0.0639)	(0.0642)
Contiguity (d)	0.711***	0.737***	0.750***
	(0.128)	(0.130)	(0.128)
Zero trade (t−4) (d)	-0.387***	-0.392***	-0.384***
	(0.130)	(0.131)	(0.131)
UN vote correlation (t−4)	-0.0939	-0.113	-0.0590
	(0.0960)	(0.0993)	(0.102)
Sum of democracy indexes	-0.0191	-0.0120	-0.00852
	(0.0472)	(0.0475)	(0.0485)
# otherwars in t	-0.358***	-0.362***	-0.366***
	(0.0197)	(0.0199)	(0.0205)
ln distance to nearest war in t	0.162***	0.174***	0.174***
	(0.0579)	(0.0590)	(0.0594)
Sum ln areas	0.0788***	0.0804***	0.0808***
	(0.0177)	(0.0178)	(0.0178)
Alliance active in t (d)	-0.0518	-0.0708	-0.0640
	(0.0895)	(0.0894)	(0.0910)
Common language (d)	0.131*	0.122	0.136*
	(0.0734)	(0.0749)	(0.0760)
Colonial relationship (d)	0.0948	0.0388	0.0321
	(0.113)	(0.125)	(0.127)
Common colonizer (d)	-0.0366	-0.0330	-0.0387
	(0.106)	(0.106)	(0.108)
# GATT/WTO members in dyad	0.163***	0.164***	0.177***
	(0.0583)	(0.0601)	(0.0614)
# OPEC members in dyad	0.305***		
	(0.0715)		
# OPEC members in dyad (t−11)		0.323***	
		(0.0835)	
# OPEC members in dyad (t−12)			0.327***
			(0.0846)
Constant	18.51***	29.98***	34.27***
	(1.285)	(1.802)	(2.080)
Observations	219,660	218,119	216,428
Log-pseudolikelihood	-1198.0119	-1183.792	-1158.0704
Pseudo-R^2	0.6453	0.6465	0.6487
Time dummies	Yes	Yes	Yes

Dyadic war lags	Yes	Yes	Yes
Estimation Method	Pooled Probit	Pooled Probit	Pooled Probit

Notes: Standard errors clustered by country pair are reported in parentheses with ***, **, and *, respectively, denoting significance at the 1%, 5%, and 10% levels. Time dummies and lagged MIDs (10 years) are not reported.

Quantification-Average marginal effects:

Table 9 presents the average mean effects (AMEs) of all the significant results on oil and OPEC variables of our models, after solving for endogeneity and reverse causality problems. The magnitude in the recursive bivariate probit model and pooled probit model are not having an easy economic interpretation, because of the non-linearity in the probit models, thus I am calculating their AMEs to quantify their magnitude. As we see, ceteris paribus by 1 unit increase in the sum of oil variables or by 1 extra OPEC member within the dyad, the probability of MID onset is increasing. Considering the analysis of the whole world and the increases from oil variables, the lowest increase is from the sum of crude oil reserves at time t by 0.00000863 points (see **Table 9**, column 1) and the highest increase is from the sum of crude oil net exports (t-12) by 0.00329 points (see **Table 9**, column 8), which is having a double magnitude than crude oil net exports (t-11) (see **Table 9**, column 7). Now considering the analysis of the non-OPEC members, the increase from the sum of oil rents is by 0.00989 points (see **Table 9**, column 6). Lastly, considering the increase from the number of OPEC members in the dyad, the positive magnitudes for time t, t-11, t-12 are very close to each other, by about 0.00084 points from time t and 0.00089 points from the lags (see **Table 9**, column 9-11 respectively).

Table 9 (Bivariate probit and Pooled probit): What are the average marginal effects (AMEs) on the probability of MIDs for every extra unit from the sum of oil or every extra OPEC member within the dyad?

	(1)	(2)	(3)	(4)	(5)	(6)
	Results by adding crude oil reserves (Years: 1981-2009)	Results by adding crude oil production (t−11) (Years: 1982-2009)	Results by adding crude oil, NGPL and other liquids production (t−11) (Years: 1985-2009)	Results by adding crude oil exports (t−11) (Years: 1985-2009)	Results by adding oil rents (t−11) (Years: 1982-2009)	Results by adding oil rents (t−11) (Years: 1982-2009)
VARIABLES	MID	MID	MID	MID	MID	MID
PTA (d)	-0.000404	-0.000117	-0.000114	-0.000451	-6.42e-05	-9.80e-05
	(0.000349)	(0.000301)	(0.000295)	(0.000353)	(0.000312)	(0.000325)
PTFTA	0.000417	0.000692	0.000634	0.000333	8.50e-05	-0.000112
	(0.000264)	(0.000635)	(0.000625)	(0.000316)	(0.000822)	(0.000866)
PTCU	-3.54e-05	-0.000253	-0.000264	-0.000118	0.000101	0.000425
	(0.000216)	(0.000610)	(0.000597)	(0.000290)	(0.000573)	(0.000546)
# peaceful years	-2.64e-06**	-3.97e-06*	-4.00e-06**	-2.06e-06*	-6.32e-06***	-6.25e-06***
	(1.05e-06)	(2.06e-06)	(2.00e-06)	(1.12e-06)	(2.18e-06)	(2.32e-06)
ln distance	-0.00105***	-0.00114***	-0.00110***	-0.00115***	-0.00102***	-0.000900***

	(0.000246)	(0.000224)	(0.000218)	(0.000235)	(0.000216)	(0.000210)
Contiguity (d)	0.000620***	0.00181***	0.00177***	0.000871***	0.00178***	0.00164***
	(0.000206)	(0.000431)	(0.000422)	(0.000272)	(0.000392)	(0.000399)
Zero trade (t−4) (d)	-0.000882***	-0.00166***	-0.00162***	-0.000918***	-0.00333***	-0.00300***
	(0.000326)	(0.000629)	(0.000614)	(0.000333)	(0.000908)	(0.000867)
UN vote correlation (t−4)	3.27e-05	2.43e-05	3.32e-05	-3.97e-06	0.000120	0.000242
	(0.000133)	(0.000360)	(0.000345)	(0.000167)	(0.000365)	(0.000385)
Sum of democracy indexes	7.25e-05	0.000136	0.000129	6.01e-05	0.000273	0.000118
	(5.91e-05)	(0.000166)	(0.000163)	(7.79e-05)	(0.000179)	(0.000191)
# otherwars in t	-0.000359***	-0.000882***	-0.000865***	-0.000414***	-0.000911***	-0.000804***
	(8.22e-05)	(0.000100)	(9.82e-05)	(8.15e-05)	(9.16e-05)	(9.19e-05)
ln distance to nearest war in t	0.000243***	0.000543***	0.000543***	0.000239**	0.000374*	0.000151
	(8.50e-05)	(0.000206)	(0.000200)	(0.000102)	(0.000202)	(0.000199)
Sum ln areas	5.36e-05**	0.000191***	0.000185***	9.30e-05***	0.000210***	0.000166***
	(2.31e-05)	(6.01e-05)	(5.86e-05)	(3.07e-05)	(5.57e-05)	(5.36e-05)
Alliance active in t (d)	-0.000189	-0.000491	-0.000493	-0.000214	-0.000406	-0.000310
	(0.000123)	(0.000366)	(0.000359)	(0.000175)	(0.000311)	(0.000310)
Common language (d)	0.000471***	0.000520**	0.000525**	0.000432***	0.000905***	0.000963***
	(0.000131)	(0.000263)	(0.000256)	(0.000138)	(0.000256)	(0.000245)
Colonial relationship (d)	-0.000302*	-0.000329	-0.000323	-0.000305	-0.000264	-0.000223
	(0.000183)	(0.000365)	(0.000353)	(0.000196)	(0.000333)	(0.000308)
Common colonizer (d)	-0.000124	-2.25e-05	-2.90e-05	-0.000143	-0.000254	-0.000188
	(0.000131)	(0.000357)	(0.000351)	(0.000172)	(0.000408)	(0.000426)
# GATT/WTO members in dyad	0.000392***	0.000599**	0.000593**	0.000545***	0.000496*	0.000605*
	(0.000128)	(0.000290)	(0.000283)	(0.000182)	(0.000294)	(0.000359)
Sum of crude oil reserves	8.63e-06*					
	(4.74e-06)					
Sum of crude oil production (t−11)		0.00258*				
		(0.00156)				
Sum of crude oil and NGPL production (t−11)			0.00256*			
			(0.00151)			
Sum of crude oil exports (t−11)				0.00141*		
				(0.000855)		
Sum of oil rents (t−11)					0.00289*	0.00989*
					(0.00171)	(0.00549)
Sum of crude oil net exports (t−11)						
Sum of crude oil net exports (t−12)						

# OPEC members in dyad						
# OPEC members in dyad (t−11)						
# OPEC members in dyad (t−12)						
Observations	146,284	102,003	104,350	104,254	117,167	99,402
Sample	Full	Full	Full	Full	Full	Non-OPEC members
Estimation Method	Pooled Probit	Pooled Probit	Pooled Probit	Bivariate Probit	Pooled Probit	Pooled Probit

Notes: All oil variables are measured in US billion real 2010 $ per day. Standard errors calculated using the delta method are reported in parentheses with ***, **, and *, respectively, denoting significance at the 1%, 5%, and 10% levels. Time dummies and lagged MIDs (10 years) are not reported. Column 1: AMEs based on the model of Table 4, column 3. Column 2-6: AMEs based on the model of Table 5, column 1,2, and 4-7 respectively. Column 7-8: AMEs based on the model of Table 7, column 2-3 respectively. Column 9-11: AMEs based on the model of Table 8, column 1-3 respectively. All columns are having full sample, except column 6 that has the sample of non-OPEC members.

Table 9 (Bivariate probit and Pooled probit) (Continued): What are the average marginal effects (AMEs) on the probability of MIDs for every extra unit from the sum of oil or every extra OPEC member within the dyad?

	(7)	(8)	(9)	(10)	(11)
	Results by adding crude oil net exports (t−11) (Years: 1981-2009)	Results by adding crude oil net exports (t−12) (Years: 1993-2009)	Results by adding # OPEC members in dyad (Years: 1992-2009)	Results by adding # OPEC members in dyad (t−11) (Years: 1962-2009, excluding 1968)	Results by adding # OPEC members in dyad (t−12) (Years: 1963-2009, excluding 1968)
VARIABLES	MID	MID	MID	MID	MID
PTA (d)	-4.62e-05	-5.46e-05	0.000435	0.000436	0.000384
	(0.000262)	(0.000295)	(0.000281)	(0.000285)	(0.000282)
PTFTA	0.000838	0.000571	0.00199***	0.00198***	0.00207***
	(0.000599)	(0.000626)	(0.000618)	(0.000621)	(0.000609)
PTCU	-0.000158	-0.000246	0.000211	0.000203	0.000209
	(0.000534)	(0.000600)	(0.000513)	(0.000528)	(0.000533)
# peaceful years	-5.26e-06***	-4.52e-06**	-6.92e-06***	-6.67e-06***	-6.68e-06***
	(1.87e-06)	(2.05e-06)	(1.88e-06)	(1.86e-06)	(1.85e-06)
ln distance	-0.000969***	-0.00103***	-0.00112***	-0.00113***	-0.00112***
	(0.000196)	(0.000222)	(0.000180)	(0.000182)	(0.000178)
Contiguity (d)	0.00198***	0.00178***	0.00196***	0.00202***	0.00204***

	(0.000396)	(0.000427)	(0.000360)	(0.000365)	(0.000360)
Zero trade (t−4) (d)	-0.00148***	-0.00166***	-0.00107***	-0.00108***	-0.00104***
	(0.000472)	(0.000607)	(0.000365)	(0.000366)	(0.000364)
UN vote correlation (t−4)	8.34e-05	-1.16e-05	-0.000259	-0.000309	-0.000160
	(0.000312)	(0.000345)	(0.000264)	(0.000272)	(0.000278)
Sum of democracy indexes	0.000205	0.000153	-5.26e-05	-3.29e-05	-2.31e-05
	(0.000144)	(0.000165)	(0.000130)	(0.000130)	(0.000131)
# otherwars in t	-0.000879***	-0.000860***	-0.000986***	-0.000993***	-0.000993***
	(7.52e-05)	(9.77e-05)	(6.82e-05)	(6.91e-05)	(6.98e-05)
ln distance to nearest war in t	0.000525***	0.000504**	0.000446***	0.000477***	0.000471***
	(0.000194)	(0.000200)	(0.000161)	(0.000164)	(0.000163)
Sum ln areas	0.000182***	0.000212***	0.000217***	0.000221***	0.000219***
	(5.19e-05)	(5.88e-05)	(4.92e-05)	(4.97e-05)	(4.85e-05)
Alliance active in t (d)	-0.000283	-0.000455	-0.000143	-0.000194	-0.000174
	(0.000273)	(0.000351)	(0.000247)	(0.000246)	(0.000247)
Common language (d)	0.000449**	0.000468*	0.000360*	0.000334	0.000368*
	(0.000217)	(0.000253)	(0.000201)	(0.000205)	(0.000205)
Colonial relationship (d)	-0.000150	-0.000301	0.000261	0.000107	8.72e-05
	(0.000321)	(0.000358)	(0.000312)	(0.000343)	(0.000344)
Common colonizer (d)	0.000155	-0.000107	-0.000101	-9.05e-05	-0.000105
	(0.000279)	(0.000347)	(0.000291)	(0.000292)	(0.000292)
# GATT/WTO members in dyad	0.000232	0.000653**	0.000449***	0.000451***	0.000481***
	(0.000180)	(0.000268)	(0.000161)	(0.000166)	(0.000168)
Sum of crude oil reserves					
Sum of crude oil production (t−11)					
Sum of crude oil and NGPL production (t−11)					
Sum of crude oil exports (t−11)					
Sum of oil rents (t−11)					
Sum of crude oil net exports (t−11)	0.00156**				
	(0.000790)				
Sum of crude oil net exports (t−12)		0.00329**			
		(0.00139)			
# OPEC members in dyad			0.000839***		
			(0.000204)		
# OPEC members in dyad (t−11)				0.000888***	

				(0.000237)	
# OPEC members in dyad (t−12)					0.000886***
					(0.000238)
Observations	161,141	104,254	219,660	218,119	216,428
Sample	Full	Full	Full	Full	Full
Estimation Method	Pooled Probit	Pooled Probit	Pooled Probit	Pooled Probit	Pooled Probit

Notes: All oil variables are measured in US billion real 2010 $ per day. Standard errors calculated using the delta method are reported in parentheses with ***, **, and *, respectively, denoting significance at the 1%, 5%, and 10% levels. Time dummies and lagged MIDs (10 years) are not reported. Column 1: AMEs based on the model of Table 4, column 3. Column 2-6: AMEs based on the model of Table 5, column 1,2, and 4-7 respectively. Column 7-8: AMEs based on the model of Table 7, column 2-3 respectively. Column 9-11: AMEs based on the model of Table 8, column 1-3 respectively. All columns are having full sample, except column 6 that has the sample of non-OPEC members.

Robustness checks

Finally, I do and some robustness checks by regressing MIDs with min 4 or 5 hostility level and by also adding the sum of military expenditures (t-4) in log form, the absolute difference of military expenditures (t-4) in log form, and the GDP in real 2010 $ per capita in log form within the dyad (the data of military expenditures comes from COW National Material Capabilities data set v5.0 and the data of the size of population to construct GDP in real 2010 $ per capita in log form comes from World Development Indicators – World Bank DataBank). The military expenditures are lagged by 4 lags so to capture the old information on MID's strategy (see Hadjiyiannis et al., 2016). By checking for the MIDs with min 4 or 5 hostility level, I find that an increase by 1 unit of the sum of oil rents (t-11) and crude oil net exports (t-11) for non-OPEC members are significantly increasing the probability of MIDs at 10% level and the magnitude on the impact is higher than MIDs with min 3, 4, or 5 hostility level (see **Table 5**, column 7). Additionally, I find that an increase in the number of OPEC members in dyad at time t, t-11 and t-12 are significantly increasing the probability of MIDs at 1% level for the first impact and 5% level for the last two impacts, and the magnitude on the impacts is a bit lower than MIDs with min 3, 4, or 5 hostility level (see **Table 8**). Considering the other models, I do not find any significant impact on the probability of MIDs. Now by considering the checks with the extra variables of military expenditures and the GDP per capita, I find that an increase by 1 unit of the sum of crude oil reserves (t-11) is significantly decreasing the probability of MIDs at 10% level. Additionally, I find that an increase in the sum of oil rents (t-11) for non-OPEC members is significantly increasing the probability of MIDs at 5% level and the magnitude on the impact is higher than MIDs with min 3, 4, or 5 hostility level (see **Table 5**, column 7). Lastly, I find that an increase in the number of OPEC members in dyad at time t, t-11 and t-12 are significantly increasing the probability of MIDs at 1% level and the magnitude on the impact is very similar with MIDs with min 3, 4, or 5 hostility level (see **Table 8**). Concluding, according to my robustness checks, only the sum of oil rents (t-11) for non-OPEC members and the number of OPEC members in dyad at time t, t-11 and t-12 have robust positive impacts on the probability of MIDs onset.

Consistency checks

According to literature (see Ross, 2004; De Soysa et al., 2011; Strüver and Wegenast, 2018; Colgan, 2010; Lee, 2018) oil is having a quantitative and qualitative positive impact of 50% increase on the probability of MIDs onset. For regression results on qualitative analyses, the impact from dummy and continues variables of oil on the probability of MIDs onset, is ranges from 0.0000123-0.617. Lastly, it seems that when the variables are measured as continues variables, oil reserves have the highest impact on the probability of MIDs onset and oil net exports have the lowest impact on MIDs. Concluding, comparing with my results, the positive impacts of oil variables on the probability of MIDs onset are consistent only qualitatively with the literature. Interestingly, the impact of oil reserves at time t is having a lower magnitude on the probability of MIDs than the literature and at time t-11 is even lower with a zero impact, but the other variables at time t-11 are having a higher magnitude on the probability of MIDs than the literature.

4. Conclusions

In this paper I tried to investigate the impact of oil on the probability of interstate conflict onset, and I also include the dynamics of conflict for autocorrelation in the model. Through the theory, oil interstate conflicts are initiating because there is rational miscalculation since there is scarcity on the information and because there is difference of opinions about the relative power between states. Additionally, the incentives to increase the probability of interstate conflicts, is from the existence and the benefits that oil can give to the greed states as an income or as a future investment, because of its high use in primary energy consumption and its high demand through the world. Through the paper I am using as a main model, the recursive bivariate probit model to analyze the empirical results by endogenizing preferential trade agreements in the model, or the pooled probit model when the main model does not have a significant endogeneity. The empirical study includes 37,950 dyad-years that come from 275 countries and the period I analyze is from 1961-2009. To overcome endogeneity and reverse causality problems in the model I am using lags on the sum of crude oil and the number of OPEC members. Also, I am doing an analysis on non-OPEC members to capture if there is any significant impact of oil on interstate conflicts onset from these countries specifically. Lastly, I am using an older information on oil as well, because states want a well thinking strategy before initiating an interstate conflict, thus an older information on oil will capture this impact on the probability of interstate conflict onset.

According to my empirical study, there are significant and robust evidence that the dynamic information of oil is increasing the probability of interstate conflicts onset. The most robust significant evidence is on the number of OPEC members within the dyad in time t, t-11, and t-12, which is a strategic oil variable and is increasing the probability of interstate conflicts onset. This variable has the most unbiased and asymptotically consistent results on the probability of interstate conflicts onset. The second statistically positive and robust impact on the probability of interstate conflicts onset is from the sum of oil rents (t-11) for non-OPEC members which again is increasing the probability of interstate conflicts onset. As for the other oil variables I do not find robust evidence of a positive impact on

the probability of interstate conflicts onset. But there is evidence of my specific models that the sum of crude oil production (t-11), crude oil and NGPL production (t-11), crude oil reserves at time t, crude oil exports (t-11), crude oil net exports at time t-11 and t-12, and oil rents (t-11) have a significant positive impact on the probability of interstate conflicts onset. The magnitude from crude oil net exports in time t-12 is twice the magnitude from time t-11. Thus, old information may count more than current information on the probability of interstate conflicts onset. Considering the sum of the aggregation of fuel exports (t-11) I do not find a statistically significant impact on interstate conflicts, after resolving for reverse causality and endogeneity in the model. Additionally, according to the old information for the sum of crude oil reserves (t-11) and all the variables at time t-12 except of the sum of crude oil net exports and the number of OPEC members, I do not find significant impact on interstate conflicts. Apart from that, all the results are qualitatively consistent through the literature.

5. Appendix A.

Data conversions

For the regressions, I am using some data to convert oil variables in US 2010 real billion dollars per day. I am using that measure to have more efficient comparisons between the natural resource variables, thus all the variables must be in the same value and must not have impacts from nominal price effects. The first data I am using is gross domestic product (GPD) in nominal US dollars, total exports of goods and services in nominal US dollars and US Consumer Index Price (CPI) with 2010 as base year. All this data comes from World Development Indicators – World Bank DataBank. In my data I specifically have oil rents per GDP and fuel exports per total exports, and to convert them in nominal values, I multiply them by GDP and total exports of goods and services, respectively. Also, the second data I am using is West Texas Intermediate (WTI) crude oil closing prices in nominal US dollars per barrel from Global Financial Data. This data, I am using it to convert any oil variables in nominal value by multiplying them, because oil variables were measured in barrels. To generate real 2010 prices, I am using the following calculation: Real value=Nominal value/US CPI in percentage (base year=2010). Lastly, to take per day values, I am dividing each value by 365 days. Lastly, to construct the GDP per capita in real 2010 dollars in log form, I take the sum of GDP for country i and j and divide it by the sum of the total population size of both countries.

References

Anderton C. H. and Carter J. R., 2001, ''The Impact of War on Trade: An Interrupted Times-Series Study'', *Journal of Peace Research*, Vol. 38, No. 4, pp. 445-457.

Anyio S. F., 2015, ''ILLEGAL OIL BUNKERING AND OIL THEFT IN NIGERIA: IMPACT ON THE NATIONAL ECONOMY AND THE WAY FORWARD'', *Ilimi Journal of Arts and Social Sciences (IJASS)*, Vol. 1, No. 1, pp. 52-64.

Aslaksen S. and Torvik R., 2006, ''A Theory of Civil Conflict and Democracy in Rentier States'', *Scandinavian Journal of Economics*, Vol. 108, No. 4, pp. 571-585.

Besley T. J. and Persson T., 2008, ''THE INCIDENCE OF CIVIL WAR: THEORY AND EVIDENCE'', *NATIONAL BUREAU OF ECONOMIC RESEARCH*, Working Paper 14585, pp. 1-39.

Blattman C. and E. Miguel, 2010, ''Civil War'', *Journal of Economic Literature*, Vol. 48, No. 1, pp. 3-57.

Bove V., Gleditsch K. S., and Sekeris P. G., 2016, '' ''Oil above Water'': Economic Interdependence and Third-party Intervention'', *Journal of Conflict Resolution*, Vol. 60, No. 7, pp. 1251-1277.

Bremer S. A., ''Dangerous Dyads: Conditions Affecting the Likelihood of Interstate War, 1816-1965'', *The Journal of Conflict Resolution*, Vol. 36, No. 2, pp. 309-341.

Brochmann M. and Hensel P. R., 2008, ''Peaceful Management of International River Claims'', *Paper presented at the Annual Meeting of the International Studies Association*, San Francisco, March 2008, pp. 1-43.

Brückner M. and Ciccone A., 2007, ''Growth, Democracy, and Civil War'', *CEPR Discussion Papers 6568*, pp. 1-22.

Brunnschweiler C. N. and Bulte E. H., 2009, ''Natural resources and violent conflict: resource abundance, dependence, and the onset of civil wars'', *Oxford Economic Papers*, Vol. 61, pp. 651-674.

Bulte E. and Damania R., 2008, ''Resources for Sale: Corruption, Democracy and the Natural Resource Curse'', *The B.E. Journal of Economic Analysis & Policy*, Vol. 8, No. 1 (Contributions), Article 5, pp. 1-30.

Caselli F. and Cunningham T., 2009, ''Leader behaviour and the natural resource Curse'', *Oxford* Economic Papers, Vol. 61, pp. 628-650.

Caselli F., 2006, ''Power Struggles and the Natural Resource Curse'', *Working Paper*, pp. 1-22.

Caselli F., Morelli M., and Rohner D., 2013, ''THE GEOGRAPHY OF INTER-STATE RESOURCE WARS'', *NATIONAL BUREAU OF ECONOMIC RESEARCH*, *Working Paper 18978*, pp. 1-56.

Colgan J. D., 2010, ''Oil and Revolutionary Governments: Fuel for International Conflict'', *International Organization*, Vol. 64, pp. 661-694.

Collier P. and Hoeffler A., 1998, ''On economic causes of civil war", *Oxford Economic Papers*, Vol. 50, pp. 563-573.

Collier P. and Hoeffler A., 2004, ''Greed and grievance in civil war'', *Oxford Economic Papers*, Vol. 56, pp. 563-595.

Collier P. and Hoeffler A., 2005, ''Resource Rents, Governance, and Conflict'', *JOURNAL OF CONFLICT RESOLUTION*, Vol. 49, No. 4, pp. 625-633.

Collier P., Hoeffler A., and Söderbom M., 2004, ''On the Duration of Civil War'', *Journal of Peace Research*, Vol. 41, No. 3, pp. 253-273.

Conconi P., Sahuguet N., and Zanardi M., 2014, ''Democratic Peace and Electoral Accountability'', *Journal of the European Economic Association*, Vol. 12, No. 4, pp. 997-1028.

Covert T., Greenstone M., and Knittel C. R., 2016, '' Will We Ever Stop Using Fossil Fuels?'', *Journal of Economic Perspectives*, Vol. 30, No 1, pp. 117-138.
Data Source 1: Correlates of War (COW) project, https://correlatesofwar.org, (Dec 2020).
Data Source 2: Independent Statistics and Analysis U.S. Energy Information Administration (EIA), https://www.eia.gov, (Dec 2020).
Data Source 3: World Development Indicators - World Bank DataBank, https://databank.worldbank.org/home.aspx, (Dec 2020).
Data Source 4: Global Financial Data, https://globalfinancialdata.com, (Dec 2020).
Data Source 5: Organization of the Petroleum Exporting Countries (OPEC), https://www.opec.org/opec_web/en, (Dec 2020).
De Luca G., Sekeris P. G., and Vargas J. F., 2018, ''Beyond divide and rule: Weak dictators, natural resources and civil conflict'', *European Journal of Political Economy*, Vol. 53, pp. 205-221.
De Soysa I. and Neumayer E., 2007, ''Resource Wealth and the Risk of Civil War Onset: Results from a New Dataset of Natural Resource Rents, 1970–1999'', *Conflict Management and Peace Science*, Vol. 24, pp. 201-218.
De Soysa I., Gartzke E., and Lie T. G.,2011, ''Oil, Blood, and Strategy How Petroleum Influences Interstate Conflict'', *Conference: International Studies Association*, pp.1-42.
Deininger K., 2003, ''Causes and consequences of civil strife: micro-level evidence from Uganda'', *Oxford Economic Papers*, Vol. 55, pp. 579-606.
Elbadawi I. and Sambanis N., 2002, ''How Much War Will We See? Explaining the Prevalence of Civil War'', *The Journal of Conflict Resolution*, Vol. 46, No. 3, pp. 307-334.
Fearon J. D., 1995, ''Rationalist Explanations for War'', *International Organization*, Vol. 49, No. 3, pp. 379-414.
Hadjiyiannis C., Heracleous M. S., and Tabakis C., 2016, ''Regionalism and conflict: Peace creation and peace diversion'', *Journal of International Economics*, Vol. 102, pp. 141-159.
Hendrix C. S., 2017, ''Oil prices and interstate conflict'', *Conflict Management and Peace Science*, Vol. 34, No. 6, pp. 575-596.
Hensel P. R., Mitchell S. M., and Sowers II T. E., 2006, ''Conflict management of riparian disputes'', *Political Geography*, Vol. 25, pp. 383-411.
Herzberg J. and Lorz O., 2020, ''Sourcing from conflict regions: Policies to improve transparency in international supply chains'', *Review of International Economics*, Vol. 28, pp. 395–407.
Janus T., 2012, ''Natural resource extraction and civil conflict'', *Journal of Development Economics,* Vol. 97, pp. 24-31.
Jones D. M., Bremer S. A., and Singer J. D., 1996, ''MILITARIZED INTERSTATE DISPUTES, 1816-1992: RATIONALE, CODING RULES, AND EMPIRICAL PATTERNS'', *CONFLICT MANAGEMENT AND PEACE SCIENCE*, VOL. 15, NO. 2, pp. 163-215.
Kim H. M. and Rousseau D. L., 2005, ''The Classical Liberals Were Half Right (or Half Wrong): New Tests of the 'Liberal Peace', 1960–88'', *Journal of Peace Research*, Vol. 42, No. 5, pp. 523–543.
Koubi V., Spilker G., Böhmelt T., and Bernauer T., 2014, ''Do natural resources matter for interstate and intrastate armed conflict?'', *Journal of Peace Research*, Vol. 51, No. 2, pp. 227-243.
Lee C., 2018, ''Oil and Terrorism: Uncovering the Mechanisms'', *Journal of Conflict Resolution*, Vol. 62, No. 5, pp. 903-928.
Levitt C. J., 2016, ''Information spillovers in onshore oil and gas exploration'', *Resource and Energy Economics*, Vol. 45, pp. 80-98.
Lujala P., 2010, ''The spoils of nature: Armed civil conflict and rebel access to natural resources'', *Journal of Peace Research*, Vol. 47, No.1, pp. 15-28.

Martin P., Mayer T., and Thoenig M., 2008, ‘’Make Trade Not War?’’, *Review of Economic Studies*, Vol. 75, pp. 865-900.
Martin P., Mayer T., and Thoenig M., 2012, ‘’The geography of conflicts and regional trade agreements’’, *American Economic Journal: Macroeconomics*, Vol. 4, No. 4, pp. 1-35.
Murshed S. M., 2010, ‘’Explaining Civil War, A rational Choice Approach’’, *Edward Elgar*, pp. 1-30.
Ross M. L., 2001, ‘’Does Oil Hinder Democracy?’’, *World Politics*, Vol. 53, No. 3, pp. 325-361.
Ross M. L., 2004, ‘’ What Do We Know about Natural Resources and Civil War? ‘’, *Journal of Peace Research*, Vol. 41, No. 3, pp. 337-356.
Sørli M. E., Gleditsch N. P., and Strand H., 2005, ‘’Why Is There So Much Conflict in the Middle East?’’, *The Journal of Conflict Resolution*, Vol. 49, No. 1, pp. 141-165.
Strüver G. and Wegenast T., 2018, ‘’The Hard Power of Natural Resources: Oil and the Outbreak of Militarized Interstate Disputes’’, *Foreign Policy Analysis*, Vol. 14, pp. 86-106.
Taillard M., 2018, “Economics and Modern Warfare, The Invisible Fist of the Market”, *Palgrave Macmillan*, 2nd edition, pp. 1-302.
Venables A. J., 2016, ‘’Using Natural Resources for Development: Why Has It Proven So Difficult?’’, *Journal of Economic Perspectives*, Vol. 30, No. 1, pp. 161-184.
Vicard V., 2012, ‘’Trade, conflict, and political integration: Explaining the heterogeneity of regional trade agreements’’, *European Economic Review*, Vol. 56, pp. 54-71.