Energy Interdependence and Foreign Policy Affinity: Introducing the Global Energy Dependence Dataset

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Abstract: Energy resources, unlike other traded commodities, are essential for all economic and military activities. Given states' increasing need for energy resources, understanding when and how energy interdependence affects international politics continue to remain relevant. While scholars have extensively debated the link between international politics and international trade in general terms, systematic analyses gauging how energy interdependence shapes interstate relations are scant. To facilitate research on this topic, this manuscript first introduces the Global Energy Interdependence Dataset. The dataset, presented in monadic and dyadic formats, covers the globe for the years between 1978-2012. It also features, and motivates, an innovative measure to gauge a state's energy dependence on another. Incorporating foreign policy similarity measures based on UN voting data, I probe whether energy relations between states shape their foreign policy decisions. Empirical results show strong support for the hypothesis that energy interdependence increases dyadic foreign policy affinity. Moreover, out of four primary energy resources (i.e. coal, oil, natural gas, and electricity), natural gas appeared as a powerful foreign policy weapon to make dependent countries bend to their supplier's foreign policy wishes. Further quantitative analyses confirm the success of Russian energy weapon model in splitting up its clients from the US's foreign policy orbit.

Introduction

Does economic interdependence between two states lead to cordial relations or conflict? This question has fueled one of the most popular debates in the literature. This debate passed on from ancient Greece and Rome to medieval scholastic thinkers, who, in turn, shaped the ideas of the post-Renaissance mercantilist Europe several hundred years later (Keshk, Pollins, & Reuveny, 2004). This interest has not been confined to Western civilizations. One of the earliest arguments on the subject came from Chinese political philosophers who advised balancing security threats against gains from trade with nomadic tribes (Jagchid & van Symons, 1989).

The concept of economic interdependence was re-introduced in modern IR literature by Immanuel Kant's *Perpetual* Peace. This topic resurfaced after the Cold War, with the advent of democratic peace theory (Oneal & Russett, 1997). Liberal democratic peace theorists speculated that "dividends from peace" enlarge and strengthen the dovish camp in trading countries, hence, leading to more cordial relations between trading states. The realists, in turn, have countered this claim by asserting that trade tends to follow the flag and interdependence makes states vulnerable to volatilities in critical supplies (Barbieri, 2002). Eventually, the debate has evolved beyond the liberal-realist debate as the focus shifted on the nature of specific goods traded (Dorussen, 2006), and on economic ties besides trade such as foreign direct investment (Rosecrance & Thompson, 2003).

The notion of economic interdependence relates to concepts beyond economic and financial relations. Energy interdependence between countries constitutes one of these concepts, which has gained notable importance over the last couple of decades for policy-makers. For example, in the final presidential debate for the 2016 U.S. elections, Hillary Clinton spent almost as much time

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talking about interstate energy relations as she did for interstate commodity trade. Despite this surging interest, most valuable studies remain as in-depth case studies, describing sophisticated process shaping events in a particular case. *Systematic* studies that look at how energy shapes interstate politics generally, and how energy interdependence affects dyadic state relations specifically, are scarce.

This paper rests on two main pillars: (1) the development of a novel energy interdependence index measure: the resulting cross-sectional time-series dataset will be the first of its kind with respect to its spatiotemporal domain, and (2) the systematic analysis of the relationship between energy interdependence interstate relations using statistical large-N estimation techniques. Preliminary results show strong support for the hypothesis that energy interdependence increases dyadic foreign policy affinity. Moreover, out of four primary energy resources, natural gas appeared as the powerful weapon to promote dyadic convergence in foreign policies. The results obtained in this study may provide important insights for policy-makers in the MENA region about the importance of having control on valves of energy, which is conducive to states' foreign policy objectives in the world politics.

The paper consists of four sections. We begin our paper with a review of the literature on energy and interdependence in world politics. We state some hypotheses that emerge from the literature. In the subsequent sections, we propose our methodology and empirical results. The concluding section summarizes the key findings.

Literature Review

Energy as a Critical Commodity

Energy is a fundamental input for almost all human activity. For almost every society throughout history, energy resources and the control of them have always been of interest. Since energy has been an integral part of economic prosperity and military security, it differs from other tradable commodities. For instance, energy, in terms of the per capita consumption has broadly been acknowledged as a prominent proxy of power (SIPRI, 1974, pp. 11). Likewise, energy consumption constitutes one of the six main components for the Composite Index of National Capabilities measure.

Owing to its significance in economic and political aspects, energy have been discussed as an important factor in shaping foreign policies of states. Prominence of energy and energy resources in political science have also been discussed in many aspects. Energy resources and relations based on these resources have frequently been associated with economic and political consequences by scholars, such as the resource curse, the symptoms of which include poor economic growth, authoritarianism, democratization, inter-/intra-state wars (see *inter alia*, (Colgan, 2013; Collier & Hoeffler, 2004; Fearon & Laitin, 2003; Ross, 1999; Sachs & Warner, 2001).

Note also that energy is not a static issue—it has constantly changing dynamic as technology advances. This dynamic nature in energy issues not only influence states' domestic and foreign policy objectives, if not at an increasing rate, but also influence our research agenda as IR scholars. For instance, almost a decade ago several studies had started a debate about the total amount of available oil reserves (Campbell & Laherrère, 1998; Clarke, 2009; Deffeyes, 2006, 2008; Simmons, 2006; Simon, 1996). Building upon this debate, Colgan (2011) drew our scholarly attention to another aspect and pointed out an important and very interesting trend having been overlooked in this debate: declining oil reserves in advanced democracies. In 1950, the share of the global supply for oil that is produced in Organization for Economic Cooperation and Development (OECD) member democracies was over 50%. In the 1980s, this share was between 30% and 35%. By 2030, according to projections by the International Energy Agency (IEA) at the time, this share would have decreased to below 20%. Coupling with increasing global demand, states might increasingly depend on oil coming from non-democratic regimes and/or weakly institutionalized states (e.g. the MENA region). More interestingly, an estimate given by El-Gamal & Jaffe (2009) indicated more than half of future supply potential is projected to come only from Saudi Arabia, Iraq, and Iran. Today, however, all these experts discuss the shale revolution taking place in the US—its impact on energy market, prices, political relations— (Westphal, Overhaus, & Steinberg, 2014), the breakthrough in renewables (especially in wind and solar energy) (Sheikh, Kocaoglu, & Lutzenhiser, 2016),and recent developments in Liquefied Natural Gas (LNG) transmission, storage, and conversion technologies (Krauss, 2018). In what ways do these changes in the global energy market influence dynamics of international relations and international political economy? Does a combination of regime type and control over energy sources hamper international peace and security? Does energy interdependence promote cordial relationship between states, or the conflictual? All these questions are timely and overwhelmingly critical questions to be asked and answered relying on scholarly framework.

Regarding the role of energy in world politics (i.e. energy interdependence and its impact on interstate relations), most of the studies, so far, have relied on qualitative case studies (Aalto, 2008; Binhack & Tichý, 2012; Casier, 2011; Dimitrova & Dragneva, 2009; Harsem & Harald Claes, 2013). These studies form an important basis for our systematic analyses, but, they have not achieved any significant progress in explanation of the nexus to the extent that energy resources have gained importance in the world politics so far. These studies, in general, rest indirectly on policymakers' perceptions because data they rely on are mostly the public statements and interviews of these policymakers. These studies use basic descriptive statistics either to supplement or to negate what policymakers have said. Levi (2010) points out a lack of systematic research and comprehensive analyses about the role of energy in foreign policy. Citing expert reports or analyses does not seem to be a cure for a desire of systematic study of energy politics (Lee, 2017).Therefore, scholarly systemic analysis of energy politics with a valid and reliable energy interdependence measures would contribute to interdependence literature greatly. This paper, to the best of my knowledge, would be the first to approach this issue in a desired way.

Energy as a Type of (Inter)dependence

On conceptual elaboration of interdependence, Keohane and Nye's canonical work is one of the first research endeavors. Keohane & Nye (1977) define interdependence as a situation when 'there are reciprocal (although not necessarily symmetrical) costly effects of transaction between parties. This transactional relationship, Keohane and Nye argue, is built on two distinct dimensions—sensitivity and vulnerability. While "sensitivity shows degrees of responsiveness within a policy framework—how quickly do changes in one country bring costly changes in another, and how great are the costly effects?" (1977, pp. 32)—, vulnerability depends on costs as a function of both changes and the availability of alternatives: "vulnerability can be defined as an actor's liability to suffer costs imposed by external events even after policies have been altered" (1977, pp. 33).

Economic ties in an interdependent relationship feature costly aspects to switch partners; otherwise, the relationship would become an interconnected one. To differentiate interdependence from interconnectedness, they state:

> “A country that imports all of its oil is likely to be more dependent on the continuing flow of petroleum than a country importing furs, jewelry, and perfume (even of equivalent monetary value) will be on uninterrupted access to these luxury goods. Where there are reciprocal (although not necessarily symmetrical) costly effects of transactions, there is interdependence. Where interactions do not have significant costly effects, there is simply interconnectedness.” (Keohane & Nye 1977, pp. 9)

This study is not seminal just for the conceptual elaboration, but for the illustration of the dimensions—sensitivity and vulnerability—that a relationship should have to be identified as an interdependent relationship. According to Keohane and Nye, an interdependent relationship should be evaluated based on the extent to which it reflects both dimensions at the same time. Using the term interdependence to refer only to sensitivity, as some economists do, may lead to neglect some important political aspects of it. The critical question to be asked is: “If more alternatives were available, and new and very different policies were possible, what would be the costs of adjusting to the outside change?” (Keohane & Nye 1977, pp. 11), which corresponds literally to a vulnerability dimension.

In fact, energy inherently combines vulnerability and sensitivity aspects of interdependence. Moreover, disproportional distribution of resources across the world makes energy even more strategic. In energy trade, states do care not only the amount of their resource needs to be imported, but also alternative ways or suppliers to meet their needs in consideration of potential costs (i.e. cost of switching suppliers and/or resources). For instance, suppose two countries need the same proportion of natural gas import to fulfill their domestic demand. If one of these two states could diversify its natural gas needs by easily altering supplier or shifting to domestic production in a less costly way, and if the other state has no option but the usual supplier in order to fulfill domestic gas demand, then the latter would be more vulnerable than the former, although they both seem equally sensitive to price changes.

For instance, sensitivity in energy trade corresponds to the mutual effects of any change in the interdependent relationship, such as disruption of supply. While importer may suffer from the energy shortage, the exporter may sacrifice from a certain portion income. For instance, oil trade account for 64% of government revenue, 24.5% of GDP, and 80% of total exports in Saudi Arabia (Alkhateeb, Sultan, & Mahmood, 2017). We observe similar figures in Russia, even after highly depreciated ruble and remarkably low oil prices: 40% of federal revenue and 12% of GDP was produced by oil and gas sector. Vulnerability, on the contrary, does not care only about the changes and their impacts; its main concern is the adaptation, or opportunity, cost—to what extent and at what costs the interdependent parties adjust these unanticipated changes. For instance, Turkey has launched two nuclear power plants projects to increase its inland energy production in the face of significant energy dependence (75% inland consumption was compensated from abroad), one of which, Akkuyu Power Plant Project, has recently been finalized and signed with Russia, as a contractor. The cost of construction is estimated to be $20 billion, which will be expended by Russian companies, and the first reactor is expected to become operational, if everything goes smoothly, in 2023. After being fully operational in 2026, this power plant is expected to provide 8% of Tukey’s energy needs. In exchange for Russian know-how and financial support, Turkey has promised a guarantee of purchase—12.35 cents for each KWh produced by the power plant, regardless of the price in the spot market. Therefore, the opportunity cost consists both temporal and financial aspects.

From the importer perspective, to compensate the amount of resource expected to come from the exporter, the importer might (i) increase its inland production—which requires exploration of new fields or further investment over the existing establishments—, (ii) diversify its energy imports—which needs new transit routes, bilateral negotiations, and agreements—, or (iii) take measures to increase efficiency and/or reduce consumption—which, again, entails further temporal and financial investments (Pirani, 2009, pp. 108-109). From the exporter perspective, the exporter should compensate its revenue loss by establishing new trade agreements and routes both of which require considerable time and material investment (Stern, Yafimava, & Pirani, 2009, pp. 57).

As should be clear, ability to diversity needs in the short-run and willingness to bear potential cost—political, economic, and social—due to shifts in provision patterns are the key components determining the level of vulnerability. Ongoing projects on nuclear energy plants in Turkey exemplify the typical efforts made by the government aiming to reduce its vulnerability regarding potential energy needs. Besides states' ability, their willingness is the key determinant here.

Since the significance of energy resources, as a foreign policy instrument, may rise to the extent that consumer countries need them, producer countries inherently desire to take advantage of this need and use energy as a weapon in order to influence or change foreign policy behaviors of consumers countries in favor of their goals (Stegen, 2011). The most notorious case exemplifying the usage of energy resources as an instrument to achieve a foreign policy objective is OPEC's (Organization of Arab Petroleum Exporting Countries) oil embargo against countries supporting the establishment of a Jewish state in Palestine in 1973. The aim of sanctioning countries spearheaded by the Saudi Arabia was to deter the West from supporting Israel. A similar embargo of oil forced the apartheid regime in South Africa to reorient its energy mix in the 1980s at a great cost (William & Lowenber, 1992). Deriving lessons from past experience, the U.S. opposed the construction of the natural gas pipeline from the U.S.S.R. to the West Germany and asserted that the U.S.S.R. could manipulate this relationship to expand its political clout. In fact, the U.S. was partially right about its suspicions because starting from the early 1990s energy export have been designated as a tool by the Kremlin to attain political goals in its 'near abroad' (Stone, 2010). Statement of the former U.S. Vice President Dick Cheney's statement in 2006 was important to confirm how the U.S., as the main rival of Russia during the Cold War, perceives Russian endeavor to construct energy relationships around its geopolitical zone. According to Cheney, Russian energy resources "become tools of intimidation or blackmail, wither by supply manipulation or attempts to monopolize transportation" (Meyers, 2006)

Relying on a foreign supplier, even if it is an ally, has been conceived as a source of vulnerability (Nance & Boettcher, 2012). Energy trade between the U.S. and Canada aftermath of the oil crisis of 1973 is a clear example of how states' vulnerability aggravates relationship between allied countries in an interdependent relationship. Canada has the third-largest oil reserves after Saudi Arabia and Venezuela and energy trade is the largest component of the trading relationship between the U.S. and Canada. For many decades, the U.S. has been the only market for Canada's natural gas and oil exports. Canada, in 1974, changed the dynamics in North American energy trade: it started to charge OPEC-level prices to American consumers and announced to phase out oil exports to the United States. This unfriendly action could have normally been reciprocated by the U.S. in ordinary times, but this time the U.S. acquiesced. Although a number of American legislators proposed to retaliate Canada by levying tariffs or taxes in the broader trade area, these proposals were not put in motion. The partial explanation of such a conforming behavior by the U.S. is that Canada was less vulnerable; it was mostly self-sufficient in oil (Keohane & Nye, 1977; Nemeth, 2007).

Therefore, since energy resources are integral part of economic prosperity and military security, states are cognizant of significance of energy as a foreign policy issue (Hadfield, 2012). Likewise, Wegner (2009) says that participants in an energy relationship "can no longer separate their energy policies from their foreign and security policies" (2009, pp. 226). Although energy is one of the key inputs of foreign policy, it has not yet analyzed systematically, but rather sporadically. The lack systematic analyses lead some scholars to think that energy is not yet a structural factor affecting states' decision-making processes. For instance, according to Hadfield (2012), energy, as a foreign policy issue of both importer and exporter states, does not 'dominate' to the extent that it ‘dictates’, but she acknowledges that energy emerges as a new form of vulnerability.

While some scholars discuss energy relations around the concept of energy security, others prefer to place energy within a more general theoretical framework of IR. In the end, however, both streams of scholarly endeavor agree on the dimension of vulnerability and the resulting harm that energy relations may inflict to a consumer country. Note, however, that energy trade, if it exists, is indispensable for both consumer and supplier countries. For a supplier country, energy trade is a source of huge income, and more importantly, this income can be obtained without damaging existing economic conditions in a society. For a consumer country, energy trade (or supply) is relatively more salient and associates with reasonably more critical issues, such as production, economic growth, social welfare, and national security. To decide which side might become more vulnerable in case of a disruption—or the type of a relationship—in energy trade needs a clarification.

As Lee (2017) indicates, measuring the degree of interdependence along a spatial plane with two end points—symmetrical or asymmetrical—is extremely difficult, particularly for measurements of political and psychological aspects of vulnerability (Baldwin, 1980; Mansfield and Pollins 2001). Studies on energy interdependence so far have mainly relied on experts' opinions to mark whether a relationship should be classified as symmetrical or asymmetrical (Ebel, 2009; Yafimava, 2011). Any factor can change the vulnerability dimension of energy interdependence, such as changes in transit routes, discovery of new resource fields, domestic energy demand, or energy storage capacities of importer states. All these changes, however, cannot occur in the short term. Therefore, factors affecting the types of relationship in energy trade can be listed as (Shaffer, 2009):

i. symmetry in the level of dependence to a supplier and a consumer (i.e. the market size at stake)
ii. availability of alternatives for both supplier (as market options) and consumer (as supplier options)
iii. the expense and expertise in transporting infrastructure.

Unless the supplier state is the only (or major) option to for each fuel source, energy consumers could change their source of need in the long term because dependence of an exporter country to export revenue is an important factor. Particularly for gas exports, impossibility of redirection of pipelines in the short-term renders the revenue stream of exporter countries quite fragile. In addition, in most cases, the financing of these gas pipelines is based on future revenues to be obtained from the export of gas. Therefore, the supplier should also consider not losing its market, especially in the long term. Correspondingly, this situation may produce a rather interdependent relationship between the importer and exporter, which, in turn, creates an opportunity for the importer to become less vulnerable to political and economic ebbs and tides in the long term. This opportunity, however, does not cure the short-term vulnerability of the importer state.

Vulnerability in short- or long-term, namely temporal explanation, is critical to distinguish the degree to which consumer and supplier countries susceptible to vulnerability in energy trade. This type of explanations rests mainly on differences in temporal concerns of participant states within a dyad and how these temporal concerns interact with potential costs to be inflicted by a trading partner, which, in fact, shapes the pattern of interdependence. In the short term, for example, the cost of interruption in energy supply is more detrimental than the cost of not getting payment in exchange of energy supply. In the long term, however, this pattern may change the other way around (Shaffer, 2009). Therefore, significance of short-term goals of states could leave them in a more vulnerable situation regardless of how important their market to the supplier. This difference is also the reason for why energy resources lead to inherent asymmetric relationship between a supplier and consumer countries. What Müller (2007) says while describing the asymmetry in relationship between Germany and Russia illustrate this aspect well:

> "The asymmetry of dependency can be seen in the fact that temporary delivery interruption could have catastrophic economic and social consequences for the consumer, while a temporary refusal by the consumer to pay for deliveries would not have the same impact on the supplier" (quotations obtained from Shaffer (2009, pp. 39)).

Lee (2017) extends the expectation of these arguments and contends that in the long run the lack of gas would become much more devastating than the loss of revenue, and thus, the possible adverse effect of energy trade disruption on importer country would become more severe than that on exporter country.

The magnitude of detrimental effects due to energy disruption may change with respect to the type of energy resources. According to Cameron (2007), natural gas is not substitutable in the short run due to the fact that both citizens in their daily life and industry in their production systems use gas only. Therefore, the European gas consumers, for instance, are relatively more dependent on Russia. In a similar vein, Harsem & Claes (2013) well illustrate vulnerability of certain European states in January 2009, when Russia temporarily shut down gas supply to Ukraine. Therefore, the relationship between Russia and Europe is an example of asymmetric interdependence

Relying on this explanation, I simply presume hereafter that in a relationship of energy interdependence the consumer side is more susceptible to the risk of being vulnerable in case of disruption, compared to its supplier. This presumption might be a strong one; however, unit of analyses in my empirical investigations is on yearly basis, and thus, compatible with the notion that the short-term impact of energy trade disruption would be more detrimental for the consumer than the supplier. As should be clear, were energy to use as a weapon, the supplier would be the one that reap benefits out of the relationship in the short-term.

Energy Interdependence and Interstate Relations

In liberal approach, interdependence reduces the likelihood of conflict because as interdependent relationship extends, the opportunity cost of exit from the relationship rises. Opportunity cost approach presumes that states' utility calculations about policy changes vis-a-vis the other state rest on the current level of interdependence. Copeland partially negates this presumption and proposes a more dynamic approach in utility calculations—states also consider future expectations in trade. According to Copeland, the impact of interdependence is conditional on states' expectation about the continuity of trade in the future, that is, if states are highly interdependent in this period, but at the same time pessimistic about the future trading relationship, then interdependence might bring about conflict. Strategic importance of traded commodities between these states might further deteriorate future relationship. In a similar vein, a state may also be wary of the actions of their partners to alter ongoing symmetrical relationship in their favor, which paves the way for being susceptible to their political pressures.

As opposed to the liberals, some realists have argued that interdependence induces conflict because states in an anarchic environment opt for reducing their vulnerabilities through use of force (Waltz, 1979; Mearsheimer, 1990), whereas other realists have not expected any significant impact of interdependence on conflict tendency, except under some politico-strategic circumstances (Buzan, 1984; Gilpin, 1981). The debate has concentrated on the question that whether symmetry in economic interdependence is conducive to cordial relationship between states.

To answer that question, Barbieri (2006) analyzes symmetry in trading relationship by distinguishing its levels. She shows that only if trading relationship contributes relatively small to overall trade revenues or economic indicators (i.e. GDP) of dyads does symmetrical interdependence decrease the likelihood of conflict. Otherwise, interdependence promotes conflict. According to Barbieri's logic, since interdependence constrains states' freedom to pursue national objective independently, this might incite national grievances further and lead to more severe forms of conflict. The absence of agreement in empirical studies trying to explain the causal link between interdependence and conflict makes this topic still relevant as "an empirical question" (Levy, 2003, pp. 129). The literature highlights the need for more refined theories about the relationship between interdependence and conflict (Crescenzi, 2003, 2005).

As a sui generis type, the role of energy interdependence in shaping interstate relations is arguable. the direction of the causal relationship between energy and cooperation remains an empirical question. Some case studies have shown that cooperation on energy is an attainable goal even amid contentious political contexts (Meierding, 2017; Stulberg, 2017). In some other case studies, particularly on Russia and the EU relations, scholars have contended that economic interdependence in the energy sphere had not mitigated mutual disputes, but rather exacerbated them (Krickovic, 2015). Some experts, in addition, assert that even energy supply potential of a country could change other countries' behavior towards it. For example, China has been supposed to modify its behavior toward Iran because of its dependence on Iranian oil supplies (Levi, 2010).

On the contrary, Van de Graff & Colgan (2017) argue that explaining events all the way through energy-related reasons is a reductionist way, called "trap of resource-determinism." According to them, energy is not a primary cause of the conflict; but it plays an important contextual role. Regarding the claims that energy dominance may produce belligerent actions in foreign policy, they show empirically that such a connection does not exist specifically in Russia–Ukraine relations. They, however, acknowledge the role of pricing in affecting foreign policy course of ex-Soviet states.

Likewise, covering five different cases in which Russia has attempted to manipulate consumer countries by using its energy resources, and examining the timing of manipulations and the reactions following from these manipulations, Stegen (2011) reaches inconclusive evidence. One of her tentative conclusions is that targeted countries, although they are in an unfavorable position due to threats of energy disruptions, may not bend to supplier's political will if they feel they could credibly benefit from strategic alliances.

The Gap in the Literature

Despite the surging interest, most valuable studies related to energy interdependence remain as in-depth case studies, describing sophisticated process shaping events in a particular case. *Systematic* studies that look at how energy shapes interstate politics generally, and how energy interdependence affects dyadic state relations specifically, are scarce. The prominent reason for the scarcity of systematic studies is unavailability of a reliable energy interdependence measure indicating dyadic energy relations. Scholars have yet to offer a replicable measurement, and neither have they compiled a dataset. Previous research seems to distinguish energy from other types of commodities under an overarching concept of strategically important trade by focusing on economic values of energy—particularly oil—trade, calculating ratios of these energy trade values to either total trade figures or GDP, and making analyses based on this measure of energy trade dependence—not of the energy dependence (see Chatagnier & Kavaklı, 2015).

Having relied mostly on economic values, discussions regarding energy trade and its implications on foreign policy behaviors of states have largely centered on the degree to which countries depend on energy income. Such a one-sided approach, however, may lead us to miss another important aspect in energy trade relationship—the position of energy importers vis-à-vis their suppliers. Since they cannot reap financial benefits, but incur losses, out of energy trade, and on top of that they are bound to get resources in any case from any supplier, importers are subject to ebbs and tides in energy relations at least as much as suppliers. Analyses to explore interstate implications of energy trade, therefore, must take account of the factors that importer countries consider.

Rather than using economic values of energy trade and constructing measures based on aggregate trade or economic production figures, we need to be cognizant of each country's energy needs, namely domestic consumption figures, and calculate dyadic dependencies with respect to amounts obtained from a given supplier. This type of approach, to me, gives much more appropriate measurement of energy interdependence than the others having relied on economic values because (i) energy trade dependence does not correspond accurately to energy dependence (ii) energy prices are quite volatile and pricing scheme of energy trade between countries may varies largely across dyads based on mutual agreements, especially for natural gas, and (iii) we cannot distinguish between countries' specific needs of energy resources by just looking at economic trade values of energy.

Relying on economic values of energy might lead us to underestimate actual energy dependence of a given country to a supplier. For instance, in terms of economic values imports originated from Russia constitute just 8% of Turkey's total imports. Yet, in terms of consumption figures, Russian gas accounts for 55% of Turkey's total gas imports. Volatility in energy prices as well as variance in pricing schemes within dyads may also cause over or underestimation of energy dependence figures. Simple comparison of oil prices in 2008 ($140 per barrel) and 2016 ($35 per barrel) would be enough to exemplify price volatility and consequent hike or drop in energy trade dependence figures for any importer country. To illustrate variance in dyadic pricing schemes, as Jaffe & Soligo (2008) reveal, while Belarus paid $46 per thousand cubic meters (tcm) of gas to Russia, Georgia, which has one-third of Belarus's population, paid $235 at the time. Measurements resting on these economic figures are sure to mislead us while comparing energy dependencies of these two countries to Russia. More importantly, using economic values in energy trade to measure dependence could also lead us to overlook specific energy needs of countries. Since energy resources are not fungible across operations, looking only at energy trade figures in currencies does not help us distinguish between strategically important resources—even though they all are classified under energy trade (Nance & Boettcher, 2017).

Addressing these caveats, the first and foremost contribution of this paper is a construction of reliable and spatiotemporally extensive dyadic energy interdependence measures in both aggregate and resource-specific forms (i.e. coal, oil, natural gas, and electricity interdependence), which would, to the best of my knowledge, be the first scholarly endeavor. After resolving the prominent obstacle before systematic analyses of energy interdependence, this paper will empirically investigate the implications of energy interdependence in interstate relations and test derived hypotheses in the light of IR and energy politics literature by employing large-N statistical techniques. Such an empirical approach towards energy interdependence–interstate relations nexus with considerably extensive quantitative energy interdependence measures—using countries' consumption figures and getting disaggregated with respect to four different types of resources—would also be a humble contribution to fill in the gap in the literature of IR and energy politics.

Energy Interdependence and Foreign Policy Similarity

Energy interdependence may shape interstate relations beyond international conflict: whether or not energy interdependence leads to convergence in the decisions of states in foreign policies. Neoliberal-functionalist theory underpins this line of thinking. A group of states may institutionalize their trading relations through various economic agreements (e.g. customs unions, long term preferential purchasing agreements, joint infrastructure investment projects). Such institutionalized groups reduce opportunistic behavior and optimize resource allocation within participating countries, hence increasing gains from economic interaction among states (Abbott & Snidal, 2000). Sustaining these gains is a major motivation for states to cooperate with each other, as a result, these "preferential groupings establish a forum for bargaining and negotiation that dampens interstate tensions, promotes reciprocity, and facilitates the resolution of conflicts before they escalate" (Mansfield & Pevehouse, 2003, pp. 776).

Energy trade often requires long-term investments (e.g. long-term procurement contracts, long-term operation schemes as nuclear plant operation contracts evince, large-scale gas and oil transport projects), which may encourage states towards longer-term cooperation. This cooperative stance, in turn, may lead to a convergence in foreign policy preferences.

Alternatively, the vulnerability against potential disruption in energy flows may also shape states' decision in a way to not bother the supplier and bend to its wishes. This study discusses all these possible explanations in the light of energy politics and interdependence theory in IR.

A visible international platform upon which this convergence of interests may reflect is United Nations General Assembly (UNGA) voting patterns. While a number of studies look at what makes states vote along similar lines in the UNGA (e.g. Holloway, 1990; Wang, 1999; Dreher & Sturm, 2012), the role of energy interdependence on UNGA voting similarity has not been examined yet. Put simply, high energy interdependence within dyads may lead to more cordial relationship, and hence, higher foreign policy affinity.

> **Hypothesis 1a:** Dyads having higher energy interdependence are expected to have higher foreign policy affinity.

Arguments on energy interdependence (Hadfield, 2009; Cameron, 2007; Lee, 2017) have claimed that vulnerability of one of the partners as a result of high dependence upon energy resources and supplier (i.e. asymmetric energy interdependence) may influence the dependent side in a way to comply with supplier's political wishes either implicitly or explicitly. To illustrate, in 2013 December Ukrainian President of the time, Viktor Yanukovich, rejected the EU's Eastern Partnership agreement by publicly saying that Ukraine would join the Eurasian Union spearheaded by Russia. The reason behind this rejection and statement was the threat made by Russia of economic sanctions covering energy trade and pricing. Therefore, I may expect that;

> **Hypothesis 1b:** As energy dependence of a country to its supplier increases, the foreign policy similarity of this country with the supplier increases.

Empirical Analyses

Dependent Variable: Foreign Policy Similarity

Quantitative measures indicating the dyadic similarities in foreign policy positions of states have been available for many years and used in studies of international relations (Bueno de Mesquita, 1975; Gartzke, 1998; Signorino & Ritter, 1999). Basically, these measures aim to capture the degree to which pairs of states have "shared or opposing interests" (Hage, 2011, pp. 287). The level of similarity in foreign policy positions of states, therefore, can be used to explain states' tendencies to cooperate and fight with each other. Scholars have argued that similarity in foreign policies has an impact to improve bilateral trade (Kastner, 2007; Morrow, Siverson, & Tabares, 1998), to increase the likelihood of receiving foreign aid (Derouen & Heo, 2004; Neumayer, 2003), to enhance the effectiveness and harmony in international organizations (Stone, 2004), to curb incentives to support foreign terrorist groups (Bapat, 2007), and to reduce the likelihood of interstate conflicts (Bearce, Flanagan, & Floros, 2006; Braumoeller, 2008; Gartzke, 2007; Long & Leeds, 2006).

Foreign policy similarity measures have been calculated based on two different ways of operationalizations: (i) strength (Bueno de Mesquita, 1975) or similarity in alliance portfolios (Signorino and Ritter 1999) or (ii) similarity in the U.N. General Assembly votes (Gartzke, 1998). Calculated scores based on either way is called S-score. To quantify the extent to which states are similar or dissimilar, squared or absolute distances between valued positions are calculated (Shankar & Bangdiwala, 2008, pp. 447). Empirical studies have suggested to use squared distances due to "historical precedent, simplifications, and some nice properties" (Fay, 2005, pp. 175; see also Krippendorff, 1970, pp. 141). Despite some reservations regarding empirical and conceptual problems in S-score (Bennett & Rupert, 2003; Sweeney & Keshk, 2005), the lack of reliable alternatives causes S-score to maintain its popularity in proxying foreign policy similarity of states.

Of these reservations enunciated, Hage's (2011) point deserves a particular place. He contends that S-score based on alliance portfolio similarities yields quite unlikely similarity numbers. Juxtaposing S-score of the U.K. with other permanent members of the U.N. Security Council during the Cold War, he demonstrates that S-scores of the U.K.-Soviet Union and U.K-.China dyads are too high compared to scores of the U.K.-France and the U.K.-U.S. dyads. In reality, however, the U.K.'s security interests during the Cold War were relatively similar to those of France and the U.S. and very different from those of China and the Soviet Union. Therefore, S-score does not reliably represent these differences (Hage, 2011). The lack of face validity in relying on alliance portfolio similarities of states while calculating S-score directs me to use the other way of operationalization in my analyses—similarity in the U.N.G.A. votes. Another advantage of this operationalization is that we could observe yearly variations in foreign policy similarity scores between states based on wide range of policy issues emerge in the U.N. Relying on alliance ties may lead to miss such variations since they require relatively more time to be established or changed, and relatively more cost to be maintained. Moreover, this cost may vary across states with respect to their certain characteristics. On the contrary, U.N.G.A. votes provide more dynamic platform for states to explicitly reveal their policy preferences in a less and equally costly way. In U.N.G.A. voting case,

> "[…] the act of voting is equally costly, regardless of whether the country votes "Yes," "Abstain," or "No." The only cost a country might incur in these situations is directly related to which other countries it chooses to support or oppose through its vote" (Hage, 2011, pp. 293–294).

As Hage argues, even S-scores based on U.N.G.A. votes suffer from not reckoning "the observed distributions of individual dyad members' foreign policy ties" (Hage, 2011, pp. 294). Substantively, scores without considering the distributions miss two important aspects of the international state system: (i) foreign policy ties are relatively rare in the system and (ii) each state's proclivity to establish such ties varies. To correct S-scores by reckoning the distribution of foreign policy ties, Hage (2011) proposes to weigh S-scores with "chance-corrected agreement indices." Employing Scott's (1955) Pi and Cohen's (1960) Kappa indices, Hage weighs S-score variable, and particularly suggests the usage of the former indices to weigh similarity scores where foreign policy ties are relatively cheap (see Hage, 2011, pp. 294–298 for more detailed and technical explanations).

Using Hage's (2017) FPSIM (Foreign Policy Similarity) Dataset v2.0, I employ absolute- and squared-distance S-scores, as well as weighted ones with Pi and Kappa indices as my dependent variables, all of which are based on UNGA voting similarities to proxy foreign policy similarity within dyads. Each similarity score ranges from -1 to 1; larger numbers indicate greater similarity in international interests. Since the dependent variable is continuous, I employ fixed-effect linear model in my estimations.

Independent Variable

"Does energy interdependence between two states lead to more affinity or divergence in their foreign policies?" is the main research question of this paper. Using my novel energy interdependence measure as the main independent variable, I investigate whether energy interdependence is effective in influencing foreign policy affinity between dyads. Using monadic energy consumption figures and interstate energy trade information encompassing the years between 1978 and 2010, I construct an energy dependence measure with respect to four resource types—coal, oil, natural gas, and electricity—as follows:

$$ED_{ij,m,t} = Import\ Dependence_{ij,m,t} \times \frac{Total\ Consumption_{i,m,t}}{Gross\ Energy\ Consumption_{i,t}}$$

where $ED_{ij,m,t}$ is energy dependence of country i to country j with respect to primary resource type m, at time t. Import dependence measure is also calculated with respect to resource types:

$$Import\ Dependence_{ij,m,t} = \frac{Exports_{ji,m,t}}{Imports_{i,m,t}} \times \frac{Imports_{i,m,t}}{Total\ Consumption_{i,m,t}} = \frac{Exports_{ji,m,t}}{Total\ Consumption_{i,m,t}}$$

By simply summing up these measures, I calculate overall energy dependence of country i to country j, at time t:

$$OED_{ij,t} = \sum_{m} ED_{ij,m,t}$$

To generate a dyadic measure of energy interdependence, I have two widely utilized alternatives—Oneal and Russett's (1997) weak-link approach or Barbieri's (1996) interdependence formulation. Both approaches use dyadic dependence figures of one state to another to generate an interdependence measure.

Oneal and Russett (1997) employ the weak-link approach and identify the lower dependence score within a dyad as an interdependence measure. The weakest link approach assumes that the less dependent side defines the conflict propensity within the dyad. As Barbieri & Peters II (2003) warn, that kind of operationalization ignores the motivation or power of the more dependent state to influence the relationship. Giving credit to their warnings, I rely on the formulation proposed by Barbieri (1996) to measure dyadic interdependence. Using dyadic energy dependence figures, I respectively calculate dyadic measures of salience, symmetry, and interdependence, all of which conform to a uniform scale that ranges from 0 to 1. Dyadic salience, calculated as a geometric mean of two states' energy dependencies, gauges the extent to which partners are reciprocally dependent upon each other in the energy relationship: high salience means the relationship is important for each partner.

$$Salience_{ij} = \sqrt{ED_{ij,m,t} \times ED_{ji,m,t}}$$

where $ED_{ij,m,t}$ is energy dependence of country i to country j for energy resource m at year t and $ED_{ji,m,t}$ is energy dependence of country j to country i for energy resource m at year t. Symmetry is measured by one minus the absolute value of the difference in energy dependencies of parties constituting the dyad. According to Barbieri, the symmetry is described as the equality in dependence figures between partners: higher symmetry scores indicates balanced dependence.

$$Symmetry_{ij} = 1 - \left|ED_{ij,m,t} - ED_{ji,m,t}\right|$$

Finally, a measure of interdependence is created as the interaction of two dimensions of economic linkages—salience and symmetry. Barbieri aims to assign a high value to interdependence when both the extent and balance of dependence are high. Salience, symmetry, and interdependence have a range of values between zero and one.

$$Interdependence_{ij} = Salience_{ij} \times Symmetry_{ij}$$

This formulation calculates four different energy interdependence variables with respect to four primary energy resources—coal, oil, natural gas, and electricity. To generate overall energy interdependence variable, I simply use the overall energy dependence figures—as a total of four resource-dependencies—and re-calculate salience, symmetry, and interdependence measure respectively. I expect a positive impact of energy interdependence on dyadic foreign policy similarity.

Control Variables

Contiguity: Being contiguous increases not only the volume of mutual trade between countries (Arad & Hirsch, 1981), but also the likelihood of intense conflicts (Bremer, 1992; Goertz & Diehl, 1992; Vasquez & Henehan, 2001). Underlying arguments explain the relationship between a geographical proximity and conflict by referring to the contact theory—conflicts of interest are observed more likely between countries having frequent levels of contact (Waltz, 1979)—or the issue salience—geographical proximity may lead to conflicts related to severer issues more frequently between countries, such as territorial issues (Goertz & Diehl, 1992). Similar arguments might also remain valid for trade–conflict nexus: higher levels of interaction led by trade might trigger conflicts over trading relationship or other issues. Therefore, contiguous states are expected to be less similar in their foreign policy decisions than distant ones.

I use Stinnett et al.'s (2002) "Contiguity" definition to generate a binary variable which is equal to one if the dyad members are directly contiguous or separated by fewer than 125miles of water. I expect a negative impact of contiguity on foreign policy similarity.

Regime Similarity: Regime types of countries appear as an important factor to control while estimating the relationship between interdependence and foreign policy similarity. A law-like theory of democratic peace has been empirically verified so many times: democracies do no fight with one another (Maoz & Abdolali, 1989; Maoz & Russett, 1993; Morgan & Campbell, 1991; Morgan & Schwebach, 1992; Ray, 1995, 1998). Similarity in norms and institutions between democratic countries might have an impact on such findings. These similarities may also keep conflict of interests between democratic states at less severe levels, or at least lead them discuss and settle problems without causing further cleavage in foreign policy decisions (Dixon, 1993). Apart from affecting foreign policy courses of countries, especially similarity in regime types has been conceived to affect trading relationships in a positive direction (Dixon & Moon, 1993; Polachek, 1997).

I use data from Polity IV (Jaggers & Gurr, 1995) to operationalize regime types of countries, which comprises scaled information of countries' democracy and autocracy levels. I identify a regime type of a given country as a democracy if the country has a Polity score (democracy score–autocracy score) of six or greater. Then, I generate a binary variable of "Regime Similarity" if both dyad members are identified under the same regime type—democracy or autocracy.

Power Preponderance: The relationship between relative power and conflict has been discussed by many theorists and divergent positions among them have emerged; whether power preponderance or a balance of power leads to peaceful relationship remains as an empirical question (Morgenthau, 1963; Organski & Kugler, 1980). Empirical studies investigating dyadic relationship between countries show that power preponderance, not a balance of power, is conducive to promoting peace (Bremer, 1992; Kugler & Lemke, 1996). Therefore, we can also expect that higher levels of power preponderance within dyads may provide higher similarity in foreign policy decisions, especially a convergence is expected of a relatively less powerful state towards the wishes of the more powerful state.

To operationalize power preponderance level in a given dyad, I use the COW Composite Index of National Capabilities (CINC) dataset. This dataset provides a composite index (CINC) score including salient factors contributing nationals power of a state, such as military spending, military personnel, iron and steel production, total population, urban population, and total primary energy consumption. CINC score ranges from zero to one. Using CINC score, I calculate power preponderance as the share of dyadic capabilities possessed by the stronger member of the dyad (Singer, 1988). The values of the variable, thus, are bounded between 0.5 and one, where 0.5 indicates that perfect equality within the dyad whereas 1 indicates that the stronger state preponderates its power.

Alliances: Alliance ties may affect both the likelihood of observing conflict within a dyad and the level of trade between states. Scholarly studies hypothesize that alliance ties make conflict between states less likely. The less conflict dyads experience, the more convergence they show in their foreign policy decisions. Although such a hypothesis lacks firm theoretical and empirical agreement (Bueno de Mesquita, 1981; Bremer, 1992; Maoz & Russett, 1993), many empirical studies have included a variable corresponding to formal security alliances in their models. Besides having influence the conflict proneness within a dyad, alliance ties may also affect the level of trade between state—states are more likely to trade with their allies (Gowa, 1994). To operationalize interstate alliance, I use Gibler and Sarkees's (2004) defense pacts data. "Allied" is a dichotomous variable equal to one if states have a defense pact with one another. Defense pacts indicate whether parties of the dyad both join in a treaty of alliance providing security guarantees of mutual assistance in the incidence either party is attacked. This type of alliance is the highest degree of common security interests which is very powerful to make parties avoid conflict and escalation.

Trade Interdependence: Motivated by optimistic arguments of classical liberal, scholars have empirically investigated the pacifying effect of trade interdependence on interstate relations. Although some scholars have demonstrated the conflict-promoting impact of this type of interdependence within dyads (Barbieri 1996), number of studies have confirmed that trade interdependence decreases the likelihood of engaging in militarized disputes (Oneal & Russett, 1997; Polachek, 1980; Gasiorowski, 1986). The more extensive trade ties that pairs of states have, the higher expected cost of conflict that partners would incur. To measure trade interdependence, I rely on Correlates of War (COW) Project Trade Dataset v4.0 (Barbieri et al., 2009).

Dyadic trade interdependence needs calculation of trade dependence figures of each member of a dyad. Trade dependence of a country on its partner is calculated based on total dyadic trade—imports and exports—as a share of total trade (Oneal & Russett, 1997). To generate a dyadic measure of trade interdependence out of these dependence figures, Oneal & Russett (1997) employs the weak-link approach and identify the lower dependence score within a dyad as a trade interdependence variable. The weakest link approach assumes that the less dependent side defines the conflict propensity within the dyad. As Barbieri & Peters II (2003) warn, that kind of operationalization ignores the motivation or power of the more dependent state to influence the relationship. Therefore, I calculate the trade interdependence measure by relying on Barbieri (1996). First, I calculate trade share of each member of a dyad as the proportion of dyadic trade flows—both import and export flows—over total trade. These trade shares are used to calculate dyadic measures of salience, symmetry, and interdependence, which conform to a uniform scale that ranges from 0 to 1. Dyadic salience, calculated as a geometric mean of two states' trade shares, gauges the extent to which trade partners are reciprocally dependent upon each other in a trade relationship: high salience means the relationship is important for each partner. Symmetry is measured by one minus the absolute value of the difference in trade shares of parties composing the dyad. According to Barbieri, the symmetry is described as the equality in energy dependence figures between partners: higher symmetry scores indicates balanced interdependence. Finally, a measure of interdependence is created as the interaction of two dimensions of economic linkages—salience and symmetry. Barbieri aims to assign a high value to interdependence when both the extent and balance of dependence are high. Salience, symmetry, and interdependence have a range of values between zero and one.

Conflict History: Dyadic conflicts or militarized disputes involved in the past may affect states' positions in foreign policy preferences and deteriorate similarity in foreign policies. Such unfavorable incidents could also cause disruption in energy trade. Using MID dataset v4.0, I identify whether pairs of state engage in a militarized dispute or not in a given year and generate a binary variable accordingly. A one-year lag is introduced for each explanatory variable to prevent reverse causality.

Table 1: Energy Interdependence and Foreign Policy Similarity

Independent Variables(t-1)	(Model 1) S Score(t) (UN Voting-Abs. Dist.)	(Model 2) S Score(t) (UN Voting-Sq. Dist.)	(Model 3) Kappa(t) (UN Voting-Sq. Dist.)	(Model 4) Pi(t) (UN Voting-Sq. Dist.)
Energy Interdependence	0.0695	-0.0296	0.554*	0.553*
	(0.81)	(-0.35)	(1.67)	(1.85)
Contiguous	0.0689*	0.0403	-0.0733	-0.0882
	(1.78)	(1.16)	(-1.15)	(-1.31)
Regime Similarity	0.0461***	0.0248***	0.0304***	0.0446***
	(20.73)	(15.08)	(10.50)	(13.07)
Power Preponderance	0.133***	0.113***	0.0564	0.0655
	(4.69)	(5.25)	(1.58)	(1.58)
Trade Interdependence	0.869***	0.638***	2.433***	2.290***
	(3.54)	(3.62)	(8.13)	(6.18)
Allied	0.0327***	0.0273***	0.0854***	0.0894***
	(3.24)	(3.77)	(5.50)	(5.20)
Militarized Dispute	-0.0211**	-0.0132**	-0.0261***	-0.0369***
	(-2.57)	(-2.28)	(-2.87)	(-2.91)
Constant	0.460***	0.623***	0.0952***	-0.00536
	(19.93)	(35.57)	(3.30)	(-0.16)
Observations	270457	270457	270457	270457
Estimation	xtreg	xtreg	xtreg	xtreg
R-Squared	0.0130	0.00915	0.00841	0.00746
F-Statistic	66.64	37.71	26.56	31.71

t statistics in parentheses
* p < 0.10, ** p < 0.05, *** p < 0.01

Table 1 shows the estimation results for overall energy interdependence variable. We do not see any statistically significant relation between energy interdependence and foreign policy similarity in Models 1 and 2, where unweighted S-scores were employed. Employing corrected S-scores, Models 3 and 4 reveal that as energy interdependence between pairs of states increases, their foreign policy decisions become more similar with each other. These findings confirm my expectation that increase in mutual vulnerability of states caused by energy interdependence leads to convergence in their policy decision. Put differently, they bend to each other's wishes as their energy relationship expands. The control variables seem to yield expected results: Regime similarity makes dyads decide similarly; foreign policy similarity increases within dyads where one side preponderates its power; states having defense pact with each other decide similarly; and extensive trade ties within dyads make them converge in their foreign policy interests. Lastly, militarized disputes occurred within dyads in the previous year significantly reduce the level of similarity in foreign policies.

Table 2: Coal Interdependence and Foreign Policy Similarity

Independent Variables(t-1)	(Model 5) S Score(t) (UN Voting-Abs. Dist.)	(Model 6) S Score(t) (UN Voting-Sq. Dist.)	(Model 7) Kappa(t) (UN Voting-Sq. Dist.)	(Model 8) Pi(t) (UN Voting-Sq. Dist.)
Coal Interdependence	-0.438	-0.0540	0.633	0.794
	(-0.31)	(-0.06)	(0.30)	(0.35)
Contiguous	0.0589*	0.0315	-0.0739*	-0.0776
	(1.85)	(1.25)	(-1.65)	(-1.61)
Regime Similarity	0.0502***	0.0267***	0.0345***	0.0504***
	(20.00)	(14.63)	(10.65)	(13.10)
Power Preponderance	0.141***	0.123***	0.0529	0.0625
	(4.50)	(5.38)	(1.33)	(1.35)
Trade Interdependence	0.820***	0.509***	2.332***	2.249***
	(2.95)	(2.63)	(7.24)	(5.43)
Allied	0.0340***	0.0307***	0.0872***	0.0925***
	(3.09)	(3.87)	(5.26)	(5.02)
Militarized Dispute	-0.0177**	-0.00917	-0.0183*	-0.0304**
	(-1.98)	(-1.59)	(-1.96)	(-2.20)
Constant	0.451***	0.615***	0.0982***	-0.00684
	(17.73)	(32.89)	(3.06)	(-0.18)
Observations	229889	229889	229889	229889
Estimation	xtreg	xtreg	xtreg	xtreg
R-Squared	0.0139	0.00998	0.00889	0.00815
F-Statistic	61.13	34.65	23.80	29.54

t statistics in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 3: Oil Interdependence and Foreign Policy Similarity

Independent Variables(t-1)	(Model 9) S Score(t) (UN Voting-Abs. Dist.)	(Model 10) S Score(t) (UN Voting-Sq. Dist.)	(Model 11) Kappa(t) (UN Voting-Sq. Dist.)	(Model 12) Pi(t) (UN Voting-Sq. Dist.)
Oil Interdependence	0.0495	-0.0488	0.904**	0.711
	(0.20)	(-0.23)	(2.03)	(1.51)
Contiguous	0.00374	0.000695	-0.119	-0.153
	(0.06)	(0.01)	(-1.10)	(-1.33)
Regime Similarity	0.0733***	0.0488***	0.0966***	0.110***
	(14.59)	(12.25)	(13.71)	(13.86)
Power Preponderance	-0.0369	0.0263	-0.0681	-0.127
	(-0.72)	(0.64)	(-0.92)	(-1.56)
Trade Interdependence	0.738***	0.468**	2.098***	1.861***
	(2.79)	(2.13)	(6.10)	(4.72)
Allied	0.115***	0.0842***	0.149***	0.176***
	(6.98)	(6.51)	(5.60)	(6.09)
Militarized Dispute	-0.0223***	-0.0139*	-0.0156*	-0.0293***
	(-2.85)	(-1.94)	(-1.66)	(-2.68)
Constant	0.531***	0.630***	0.183***	0.134**
	(12.98)	(19.09)	(3.11)	(2.04)
Observations	102212	102212	102212	102212
Estimation	xtreg	xtreg	xtreg	xtreg
R-Squared	0.0329	0.0231	0.0425	0.0366
F-Statistic	34.18	24.17	32.38	32.45

t statistics in parentheses
* p < 0.10, ** p < 0.05, *** p < 0.01

Table 4: Natural Gas Interdependence and Foreign Policy Similarity

Independent Variables(t-1)	(Model 13) S Score(t) (UN Voting-Abs. Dist.)	(Model 14) S Score(t) (UN Voting-Sq. Dist.)	(Model 15) Kappa(t) (UN Voting-Sq. Dist.)	(Model 16) Pi(t) (UN Voting-Sq. Dist.)
Natural Gas Interdepend.	-0.717	-0.918	-0.591	-0.805
	(-1.29)	(-1.51)	(-1.34)	(-1.39)
Contiguous	0.0663*	0.0411	-0.0690	-0.0865
	(1.69)	(1.12)	(-1.05)	(-1.27)
Regime Similarity	0.0417***	0.0226***	0.0341***	0.0448***
	(18.68)	(13.58)	(11.45)	(12.78)
Power Preponderance	0.117***	0.104***	0.0358	0.0603
	(4.12)	(4.77)	(0.98)	(1.43)
Trade Interdependence	1.023***	0.700***	2.525***	2.499***
	(4.13)	(3.90)	(8.31)	(6.64)
Allied	0.0384***	0.0311***	0.0864***	0.0933***
	(3.59)	(4.01)	(5.28)	(5.12)
Militarized Dispute	-0.0175**	-0.0108*	-0.0239**	-0.0332**
	(-2.06)	(-1.80)	(-2.54)	(-2.51)
Constant	0.476***	0.633***	0.113***	0.00279
	(20.69)	(35.82)	(3.84)	(0.08)
Observations	257821	257821	257821	257821
Estimation	xtreg	xtreg	xtreg	xtreg
R-Squared	0.0111	0.00807	0.00902	0.00753
F-Statistic	54.48	31.18	28.44	30.48

t statistics in parentheses
* p < 0.10, ** p < 0.05, *** p < 0.01

Table 5: Electricity Interdependence and Foreign Policy Similarity

Independent Variables(t-1)	(Model 17) S Score(t) (UN Voting-Abs. Dist.)	(Model 18) S Score(t) (UN Voting-Sq. Dist.)	(Model 19) Kappa(t) (UN Voting-Sq. Dist.)	(Model 20) Pi(t) (UN Voting-Sq. Dist.)
Electricity Interdepend.	1.345	0.663	2.344	2.401
	(1.51)	(1.36)	(1.60)	(1.63)
Contiguous	0.0711	0.0343	-0.0482	-0.0579
	(1.35)	(0.77)	(-0.58)	(-0.65)
Regime Similarity	0.0458***	0.0253***	0.0311***	0.0446***
	(18.59)	(14.10)	(9.45)	(11.56)
Power Preponderance	0.128***	0.115***	0.0431	0.0495
	(4.09)	(4.92)	(1.07)	(1.06)
Trade Interdependence	0.991***	0.716***	2.848***	2.671***
	(3.37)	(3.77)	(8.23)	(6.02)
Allied	0.0347***	0.0319***	0.103***	0.106***
	(3.09)	(4.00)	(6.24)	(5.77)
Militarized Dispute	-0.0172*	-0.0109*	-0.0217**	-0.0332**
	(-1.93)	(-1.89)	(-2.24)	(-2.37)
Constant	0.475***	0.631***	0.112***	0.0145
	(18.63)	(33.18)	(3.44)	(0.38)
Observations	233099	233099	233099	233099
Estimation	xtreg	xtreg	xtreg	xtreg
R-Squared	0.0122	0.00963	0.00925	0.00762
F-Statistic	53.49	33.10	24.13	26.28

t statistics in parentheses

* p < 0.10, ** p < 0.05, *** p < 0.01

Tables 2-5 report the estimation results with respect to interdependence in energy resource types. None of the models find statistically significant relationship between energy interdependence and foreign policy similarities within dyads, except Model 58, where oil interdependence seems to be conducive to convergence in foreign policies. Natural gas interdependence, which creates the difference in previous estimations, fails to provide significant impact on foreign policy similarities. The control variables keep the same signs and significance levels across models and the coefficients are quite similar what we observed in Table 1, where overall energy interdependence was employed.

Energy Dependence and Foreign Policy Similarity: The Test of Energy Weapon Model

My concluding analyses investigates the claims on Russian energy policy, which has been perceived by some scholars as a tool to expand Russian the influence over the foreign and security policies in the neighborhood to the smallest, and, also in Eurasia to the greatest extent (Smith, 2006; Hadfield, 2012). In fact, these intentions have been articulated many times by Russian side remarking the increasing tendency of the state to use energy as a foreign policy weapon (Buckley, 2005). These intentions also worsen security concerns of the Western countries, particularly that of the US, politicians of which remarks increasing dependence of European countries on Russian energy resources, and thus, vulnerability to supply disruptions would engender "less [NATO] alliance cohesion on critical foreign policy issues" in order to mollify Russia lest it should inflict energy disruptions (Kramer 2008). Russia has also been supposed to use energy trade as a tool to split up the U.S. and Western Europe in favor of its foreign political aims (Kramer, 1985; Stern, 1990; Stein, 1983; Adamson, 1985). The following analyses will test the validity of these claims on Russian energy policy and its impact on world politics. However, along with the change in our causal mechanism, the unit of analysis for these estimations has been switched to directed-dyad–

year. Since I will probe the extent to which potential energy importers from Russia converge their foreign policies with Russia, I need to employ directed-dyads in which Russia is the only exporter. Put differently, the estimations should evaluate the foreign policy behaviors of potential importers against Russia. Therefore, the direction of behaviors matters.

Dependent Variable: Foreign Policy Similarity with Russia

Using Hage's (2017) FPSIM (Foreign Policy Similarity) Dataset v2.0, I employ absolute- and squared-distance S-scores of all states with Russia, as well as weighted scores with Pi and Kappa indices as my dependent variables, all of which are based on UNGA voting similarities to proxy foreign policy similarity within dyads. Each similarity score ranges from -1 to 1; larger numbers indicate greater similarity in international interests. Since the dependent variable is continuous, I employ fixed-effect linear model in my estimations.

Independent Variable

The main independent variable of interest is the energy dependence of a potential importer on Russia. The analyses in this section is to investigate the extent to which energy dependence provide convergence in foreign policy decisions of importers vis-à-vis Russia. The energy dependence variable is calculated as follows:

$$ED_{ij,m,t} = \frac{Exports_{ji,m,t}}{Total\ Consumption_{i,m,t}} \times \frac{Total\ Consumption_{i,m,t}}{Gross\ Energy\ Consumption_{i,t}}$$

where $ED_{ij,m,t}$ is energy dependence of country i to country j for energy resource m at yeat t. $Exports_{ji,m,t}$ denotes the exports of country i from country j for energy resource m at yeat t. While total consumption corresponds to inland consumption figures of importer country for a given energy resource, gross energy consumption gives the total inland energy consumption comprising all resources. This formulation calculates four different energy dependence variables with respect to four primary energy resources—coal, oil, natural gas, and electricity. To calculate overall energy dependence variable, I simply get the total of these four energy dependence figures. Missing values are treated as zeros if at least one of these four energy dependence figures is available. Otherwise, I left overall energy dependence variable as missing. I expect a positive impact of energy dependence on foreign policy similarity with Russia.

Control Variables

Contiguity to Russia: Being contiguous increases not only the volume of mutual trade between countries (Arad and Hirsch 1981), but also the likelihood of intense conflicts (Bremer, 1992; Goertz & Diehl, 1992; Vasquez & Henehan, 2001). Underlying arguments explain the relationship between a geographical proximity and conflict by referring to the contact theory—conflicts of interest are observed more likely between countries having frequent levels of contact (Waltz, 1979)—or the issue salience—geographical proximity may lead to conflicts related to severer issues more frequently between countries, such as territorial issues (Goertz & Diehl, 1992). Similar arguments might also remain valid for trade–conflict nexus: higher levels of interaction led by trade might trigger conflicts over trading relationship or other issues. Therefore, contiguous states are expected to be less similar in their foreign policy decisions than distant ones.

I use Stinnett et al.'s (2002) "Contiguity" definition to generate a binary variable which is equal to one if a potential importer is directly contiguous to Russia or separated by fewer than 125 miles of water. I expect a negative impact of contiguity on foreign policy similarity.

Regime Type of a Potential Importer: Regime types of countries appear as an important factor to control while estimating the relationship between interdependence and foreign policy similarity. Since the years of the Cold War, Russia has long been posed as a threat to Western-type democratic order. Therefore, the relations of democratic states with Russia might be expected to be different than that of non-democratic states.

I use data from Polity IV (Jaggers & Gurr, 1995) to operationalize regime type of a potential importer, which comprises scaled information of countries' democracy and autocracy levels. I identify regime type as a democracy if the country has a Polity score (democracy score–autocracy score) of six or greater.

Relative Power of Russia: The relationship between relative power and conflict has been discussed by many theorists and divergent positions among them have emerged; whether power preponderance or a balance of power leads to peaceful relationship remains as an empirical question (Morgenthau, 1963; Organski & Kugler, 1980). Empirical studies investigating dyadic relationship between countries show that power preponderance, not a balance of power, is conducive to promoting peace (Bremer, 1992; Kugler & Lemke, 1996).

To operationalize relative power status of a given country vis-à-vis its opponent, I use the COW Composite Index of National Capabilities (CINC) dataset. This dataset provides a composite index (CINC) score including salient factors contributing nationals power of a state, such as military spending, military personnel, iron and steel production, total population, urban population, and total primary energy consumption. CINC score ranges from zero to one. Using CINC score, I calculate relative power of Russia as the ratio of the capabilities of Russia to the dyadic sum of the capabilities (Singer, 1988). Relative power measure ranges from zero to one; the smaller the values are, the stronger the potential initiator is (compared to the potential target).

Alliances with Russia: Alliance ties may affect both the likelihood of observing conflict within a dyad and the level of trade between states. Scholarly studies hypothesize that alliance ties make conflict between states less likely. The less conflict dyads experience, the more convergence they show in their foreign policy decisions. Although such a hypothesis lacks firm theoretical and empirical agreement (Bueno de Mesquita, 1981; Bremer, 1992; Maoz & Russett, 1993), many empirical studies have included a variable corresponding to formal security alliances in their models. Besides having influence the conflict proneness within a dyad, alliance ties may also affect the level of trade between state—states are more likely to trade with their allies (Gowa, 1994). To operationalize interstate alliance, I use Gibler and Sarkees's (2004) defense pacts data. "Allied" is a dichotomous variable equal to one if potential importers have a defense pact with Russia. Defense pacts indicate whether parties of the dyad both join in a treaty of alliance providing security guarantees of mutual assistance in the incidence either party is attacked. This type of alliance is the highest degree of common security interests which is very powerful to make parties avoid conflict and escalation.

Trade Dependence on Russia: Motivated by optimistic arguments of classical liberal, scholars have empirically investigated the pacifying effect of trade interdependence on interstate conflict. Although some scholars have demonstrated the conflict-promoting impact of this type of interdependence within dyads (Barbieri 1996), number of studies have confirmed that trade interdependence decreases the likelihood of engaging in militarized disputes (Oneal and Russett 1997; Polachek 1980; Gasiorowski 1986). The more extensive trade ties that pairs of states have, the higher expected cost of conflict that partners would incur. To measure trade interdependence, I rely on Correlates of War (COW) Project Trade Dataset v4.0 (Barbieri et al., 2009).

Trade dependence of a country on Russia is calculated based on total dyadic trade—imports to and exports from Russia—as a share of total trade (Oneal & Russett, 1997). Trade dependence figures conform to a uniform scale that ranges from 0 to 1.

Economic Development of an Importer: Economic development levels of states may affect both conflict likelihood between states and their trading relationship. As countries' economic development figures increases, they might refrain from involving in disputes to not sacrifice their current economic welfare. On the contrary, countries suffering from adverse economic shocks may tend to involve in interstate conflicts in order to turn attention away from domestic problems (Ostromand and Job 1986; James 1988; Russett 1990).

Moreover, economic development may influence energy trading patterns between states: energy demanders may continue to import energy resources as they grow without any adverse shock. Relying on Reed's (2000) operationalization of economic development and using Gleditsch's Expanded GDP Dataset v6.0, I calculate economic development variable of a given country as an annual percentage change in real GDP per capita figures.

Conflict History: Dyadic conflicts or militarized disputes involved in the past may affect states' positions in foreign policy preferences and deteriorate similarity in foreign policies. Such unfavorable incidents could also cause disruption in energy trade. Using MID dataset v4.0, I identify whether potential importers engage in a militarized dispute or not with Russia in a given year and generate a binary variable accordingly. A one-year lag is introduced for each explanatory variable to prevent reverse causality. Estimation results are shown at Table 6.

Table 6: Energy Dependence to Russia and Foreign Policy Similarity

Independent Variables(t-1)	(Model 21) S Score(t) (UN Voting-Abs. Dist.)	(Model 22) S Score(t) (UN Voting-Sq. Dist.)	(Model 23) Kappa(t) (UN Voting-Sq. Dist.)	(Model 24) Pi(t) (UN Voting-Sq. Dist.)
Energy Dependence of Importer	-0.0818	-0.110***	-0.123	-0.100
	(-1.59)	(-2.97)	(-1.59)	(-1.17)
Importer is a Democracy	-0.0344*	-0.0127	-0.0208	-0.0346
	(-1.97)	(-1.04)	(-0.82)	(-1.26)
Allied	0.101	0.0725	0.121	0.110
	(1.54)	(1.58)	(1.06)	(0.93)
Militarized Dispute	-0.0396	-0.0348	0.000602	0.00834
	(-1.24)	(-1.38)	(0.01)	(0.19)
Relative Power of Russia	-0.495***	-0.535***	-1.451***	-1.715***
	(-2.63)	(-3.65)	(-5.62)	(-5.60)
Contiguous	0.0916	0.0702	0.0417	0.0455
	(1.51)	(1.49)	(0.48)	(0.51)
Trade Dependence of Importer	0.239	0.199*	0.333	0.345
	(1.53)	(1.82)	(1.38)	(1.32)
Econ. Growth Rate of Importer	0.0212	0.0410*	0.0979***	0.0628
	(0.66)	(1.94)	(2.69)	(1.34)
Constant	1.037***	1.213***	1.510***	1.707***
	(5.85)	(8.78)	(6.21)	(5.92)
Observations	3908	3908	3908	3908
Estimation	xtreg	xtreg	xtreg	xtreg
R-Squared	0.0372	0.0534	0.102	0.0976
F-Statistic	4.197	6.062	5.845	4.908

t statistics in parentheses
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

The energy dependence of a potential importer to Russia are negatively correlated with foreign policy similarity with Russia, which is contrary to my expectations. However, the coefficients fail to pass the threshold of statistical significance in three out of four models. Relative power of Russia emerges as the strongest predictor of foreign policy similarity with Russia. As a potential importer becomes relatively powerless against Russia, its foreign policy position towards Russia seems to be negatively affected. This might be due to possibility that feeling insecure against Russia makes the partners more prudent against going into Russian orbit in their foreign policy decisions. Democratic importers decide dissimilarly with Russia whereas positive economic growth in importers increases similarity. Trade dependence on Russia seem to converge foreign policy decisions of importers towards that of Russia. However, we do not consistently observe statistical significance in the coefficients of the control variables across models, except those of relative power.

The estimations in Models 21-24 do not control for any information about foreign policy tendencies of potential importers. Ongoing foreign policy inclinations toward the U.S. may also be a factor influencing states' foreign policy stance against Russia. Therefore, I re-estimate models in Table 7 by adding foreign policy similarity levels of potential importers with the US. Table 7 reports the estimation coefficients.

Table 7: Energy Dependence to Russia and Foreign Policy Similarity

Independent Variables(t-1)	(Model 25) S Score(t) (UN Voting-Abs. Dist.)	(Model 26) S Score(t) (UN Voting-Sq. Dist.)	(Model 27) Kappa(t) (UN Voting-Sq. Dist.)	(Model 28) Pi(t) (UN Voting-Sq. Dist.)
Energy Dependence of Importer	-0.128***	-0.149***	-0.139	-0.129
	(-2.91)	(-3.77)	(-1.59)	(-1.13)
Importer is a Democracy	-0.0430***	-0.0223**	-0.0183	-0.0379
	(-3.24)	(-2.26)	(-0.76)	(-1.54)
Relative Power of Russia	-0.143	-0.298**	-1.422***	-1.657***
	(-0.79)	(-2.06)	(-5.35)	(-5.29)
Trade Dependence of Importer	0.218	0.194*	0.335	0.338
	(1.55)	(1.91)	(1.37)	(1.34)
Econ. Growth Rate of Importer	-0.0237	0.00865	0.0834**	0.0309
	(-0.87)	(0.49)	(2.41)	(0.73)
Militarized Dispute	-0.0150	-0.0237	0.000800	0.0221
	(-0.43)	(-0.85)	(0.02)	(0.46)
Allied	-0.0126	0.00578	0.0503	-0.00498
	(-0.28)	(0.17)	(0.48)	(-0.05)
Contiguous	0.0194	0.0292	0.0288	-0.00983
	(0.33)	(0.63)	(0.33)	(-0.11)
Foreign Policy Similarity w/ the US	-0.358***			
	(-17.91)			
Foreign Policy Similarity w/ the US		-0.193***		
		(-14.32)		
Foreign Policy Similarity w/ the US			-0.325***	
			(-3.87)	
Foreign Policy Similarity w/ the US				-0.295***
				(-6.37)
Constant	0.643***	0.994***	1.506***	1.556***
	(3.72)	(7.25)	(5.99)	(5.15)
Observations	3874	3874	3874	3874
Estimation	xtreg	xtreg	xtreg	xtreg
R-Squared	0.182	0.161	0.121	0.144
F-Statistic	50.03	35.48	7.726	12.95

t statistics in parentheses
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

The addition of this new control variable significantly increases the R-squared and F-statistic values indicating the improvement in the model fit and validity. Foreign policy similarity levels of potential importers with the US becomes the strongest predictor in these newly estimated models: as states become much closer to the US's foreign policy position, they significantly decide dissimilarly with Russia. Inclusion of the new variable also makes energy dependence variable substantively and statistically more significant in Models 25 and 26. The sign of the coefficients remains as negative, which does not conform to my expectations. The coefficients of the control variables are quite similar to those in the previous models.

To evaluate whether natural gas dependence shapes potential importers' foreign policy stances against Russia, I re-run the models at Table 6 and 7 by employing natural gas dependence figures of potential importers. Interestingly, our models fail to capture any significant relationship in a natural gas dependence–foreign policy similarity nexus. The results reported through Tables 6-9 help me partly conclude that Russian energy policy—using energy resources as a weapon to expand the influence over the foreign and security policies—proves ineffective and foreign policy concerns regarding energy weapon model of Russia are groundless.

Table 8: Natural Gas Dependence to Russia and Foreign Policy Similarity

Independent Variables(t-1)	(Model 29) S Score(t) (UN Voting-Abs. Dist.)	(Model 30) S Score(t) (UN Voting-Sq. Dist.)	(Model 31) Kappa(t) (UN Voting-Sq. Dist.)	(Model 32) Pi(t) (UN Voting-Sq. Dist.)
Natural Gas Dependence of Importer	0.149	0.00924	-0.0474	-0.0482
	(0.84)	(0.06)	(-0.16)	(-0.15)
Importer is a Democracy	-0.0179	-0.00668	-0.0207	-0.0260
	(-0.88)	(-0.45)	(-0.69)	(-0.79)
Allied	0.122*	0.0849*	0.130	0.122
	(1.73)	(1.68)	(1.11)	(1.00)
Militarized Dispute	0.00221	0.00297	-0.00562	-0.00259
	(0.07)	(0.12)	(-0.13)	(-0.06)
Relative Power of Russia	-0.232	-0.274*	-1.334***	-1.484***
	(-1.18)	(-1.67)	(-4.53)	(-4.27)
Contiguous	0.0892	0.0647	0.0523	0.0461
	(1.55)	(1.42)	(0.58)	(0.49)
Trade Dependence of Importer	0.204	0.167	0.298	0.292
	(1.30)	(1.53)	(1.20)	(1.09)
Econ. Growth Rate of Importer	0.0341	0.0446**	0.107***	0.0885*
	(1.03)	(2.07)	(2.66)	(1.67)
Constant	0.770***	0.960***	1.403***	1.493***
	(4.25)	(6.32)	(5.10)	(4.61)
Observations	3227	3227	3227	3227
Estimation	xtreg	xtreg	xtreg	xtreg
R-Squared	0.0300	0.0322	0.0826	0.0709
F-Statistic	2.421	2.815	4.118	3.140

t statistics in parentheses
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 9: Natural Gas Dependence to Russia and Foreign Policy Similarity

Independent Variables(t-1)	(Model 33) S Score(t) (UN Voting-Abs. Dist.)	(Model 34) S Score(t) (UN Voting-Sq. Dist.)	(Model 35) Kappa(t) (UN Voting-Sq. Dist.)	(Model 36) Pi(t) (UN Voting-Sq. Dist.)
Natural Gas Dependence of Importer	-0.103	-0.154	-0.112	-0.305
	(-0.56)	(-0.94)	(-0.38)	(-0.94)
Importer is a Democracy	-0.0274*	-0.0163	-0.0182	-0.0304
	(-1.69)	(-1.28)	(-0.63)	(-1.04)
Relative Power of Russia	0.0191	-0.141	-1.300***	-1.414***
	(0.11)	(-0.97)	(-4.31)	(-4.25)
Trade Dependence of Importer	0.178	0.159	0.294	0.273
	(1.23)	(1.53)	(1.18)	(1.05)
Econ. Growth Rate of Importer	-0.00494	0.0170	0.0982**	0.0586
	(-0.17)	(0.91)	(2.51)	(1.20)
Militarized Dispute	0.00762	0.00406	-0.00378	0.00712
	(0.22)	(0.16)	(-0.08)	(0.14)
Allied	0.0240	0.0302	0.0862	0.0103
	(0.45)	(0.74)	(0.77)	(0.09)
Contiguous	0.0231	0.0312	0.0399	-0.0184
	(0.40)	(0.69)	(0.44)	(-0.19)
Foreign Policy Similarity w/ the US	-0.298***			
	(-12.49)			
Foreign Policy Similarity w/ the US		-0.154***		
		(-10.16)		
Foreign Policy Similarity w/ the US			-0.205**	
			(-2.20)	
Foreign Policy Similarity w/ the US				-0.275***
				(-5.60)
Constant	0.490***	0.842***	1.388***	1.348***
	(2.98)	(6.21)	(4.91)	(4.27)
Observations	3204	3204	3204	3204
Estimation	xtreg	xtreg	xtreg	xtreg
R-Squared	0.156	0.122	0.0921	0.118
F-Statistic	24.46	17.73	4.259	8.311

t statistics in parentheses
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

To conclude my investigations on Russian energy weapon model and reach a satisfactory answer for the scholarly claims and concerns, I estimate eight additional models. These models are to evaluate the claims that Russia uses energy trade as a tool to split up the U.S. and Western Europe in favor of its foreign political aims (Kramer 1985; Stern 1990; Stein 1983; Adamson 1985). To that end, I now employ foreign policy similarity scores of potential importers with the US as my dependent variable and re-run the estimations with the same explanatory variables included in Models 21-28. The only exception is that I now use foreign policy similarity with Russia as one of the explanatory variables. The following models are to investigate whether energy dependence upon Russia influences importers' foreign policy stances towards the US. In other words, these models will show the extent to which Russian energy policy is effective to split up potential importers from the foreign policy clout of the US. Tables 10 and 11 show the results of models estimated.

Table 10: Energy Dependence to Russia and Foreign Policy Similarity w/ the US

Independent Variables(t-1)	(Model 37) S Score(t) (UN Voting-Abs. Dist.)	(Model 38) S Score(t) (UN Voting-Sq. Dist.)	(Model 39) Kappa(t) (UN Voting-Sq. Dist.)	(Model 40) Pi(t) (UN Voting-Sq. Dist.)
Energy Dependence of Importer	-0.148 (-1.29)	-0.238* (-1.74)	-0.0399 (-0.69)	-0.1000 (-0.62)
Importer is a Democracy	-0.0303** (-2.22)	-0.0425** (-2.30)	0.0116 (1.51)	-0.00534 (-0.33)
Relative Power of Russia	0.551*** (6.07)	0.729*** (6.31)	0.430*** (6.55)	0.196* (1.87)
Trade Dependence of Importer	0.0678 (0.64)	0.0966 (0.80)	-0.0218 (-0.29)	-0.00971 (-0.08)
Econ. Growth Rate of Importer	-0.104** (-2.44)	-0.124** (-2.32)	-0.0320** (-2.09)	-0.101** (-2.40)
Militarized Dispute	-0.0263* (-1.77)	-0.0397** (-2.12)	-0.00378 (-0.21)	0.00382 (0.19)
Allied	-0.245*** (-4.83)	-0.263*** (-4.07)	-0.206*** (-5.02)	-0.344*** (-5.19)
Contiguous	-0.117** (-2.48)	-0.137** (-2.60)	-0.0426 (-1.29)	-0.166*** (-3.42)
Foreign Policy Similarity w/ Russia	-0.475*** (-16.65)			
Foreign Policy Similarity w/ Russia		-0.602*** (-12.07)		
Foreign Policy Similarity w/ Russia			0.000215 (0.02)	
Foreign Policy Similarity w/ Russia				-0.172*** (-6.34)
Constant	-0.472*** (-5.39)	-0.314** (-2.57)	-0.364*** (-5.84)	-0.551*** (-5.31)
Observations	3874	3874	3874	3874
Estimation	xtreg	xtreg	xtreg	xtreg
R-Squared	0.287	0.217	0.159	0.159
F-Statistic	45.70	36.13	9.414	21.76

t statistics in parentheses
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Models 37-40 shows negative correlation between energy dependence to Russia and foreign policy similarity with US. However, only the coefficient in Model 38 passes the threshold of statistical significance. No substantial change is observed in the coefficients of the control variables. Relatively powerful Russia seems to frighten potential importers and makes them approach more closely to the US. Being contiguous to Russia, having defense pact with Russia, and higher foreign policy similarity with Russia decreases the affinity with the US. As potential importers achieve economically higher growth rate, their affinity with US deteriorates also. Apart from these, models report two inexplicably weird results: (i) having experienced a MID with Russia does not lead potential importers to approach the US, but split them and (ii) being a democracy does not make importers much closer to the US, but reduce their affinity.

Table 11: Natural Gas Dependence to Russia and Foreign Policy Similarity w/ the US

Independent Variables(t-1)	(Model 41) S Score(t) (UN Voting-Abs. Dist.)	(Model 42) S Score(t) (UN Voting-Sq. Dist.)	(Model 43) Kappa(t) (UN Voting-Sq. Dist.)	(Model 44) Pi(t) (UN Voting-Sq. Dist.)
Natural Gas Dependence of Importer	-0.563** (-2.30)	-0.818*** (-2.62)	-0.207* (-1.71)	-0.724*** (-2.66)
Importer is a Democracy	-0.0301* (-1.87)	-0.0484** (-2.23)	0.0145 (1.62)	-0.00912 (-0.50)
Relative Power of Russia	0.731*** (5.10)	0.914*** (4.86)	0.434*** (5.72)	0.279** (2.19)
Trade Dependence of Importer	0.0471 (0.44)	0.0610 (0.50)	-0.0263 (-0.35)	-0.0246 (-0.20)
Econ. Growth Rate of Importer	-0.104** (-2.30)	-0.129** (-2.24)	-0.0303* (-1.87)	-0.0983** (-2.24)
Militarized Dispute	-0.0306* (-1.69)	-0.0350 (-1.58)	-0.0280** (-2.03)	-0.0326** (-2.01)
Allied	-0.245*** (-4.95)	-0.267*** (-4.41)	-0.209*** (-5.08)	-0.356*** (-5.38)
Contiguous	-0.137*** (-2.71)	-0.158*** (-2.74)	-0.0487 (-1.35)	-0.201*** (-3.82)
Foreign Policy Similarity w/ Russia	-0.499*** (-13.56)			
Foreign Policy Similarity w/ Russia		-0.625*** (-9.31)		
Foreign Policy Similarity w/ Russia			0.0130 (0.80)	
Foreign Policy Similarity w/ Russia				-0.179*** (-6.03)
Constant	-0.603*** (-4.51)	-0.441** (-2.36)	-0.362*** (-5.09)	-0.585*** (-4.77)
Observations	3204	3204	3204	3204
Estimation	xtreg	xtreg	xtreg	xtreg
R-Squared	0.286	0.210	0.169	0.182
F-Statistic	34.59	24.56	9.487	20.40

t statistics in parentheses
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 11 shows the results of re-estimated models employing natural gas dependencies rather than the overall energy dependence figures of potential importers. Since natural gas is an energy resource in which Russia has comparative advantage in the global market, such a specification in independent variable of interest may inform us a lot. The results show that natural gas is a powerful tool for Russia to slide potential importers away from the orbit of the US: increase in natural gas dependence to Russia reduces potential importers' foreign policy affinity with the US. This finding proves the claims that Russia uses energy trade as a tool to split up the U.S. and Western Europe in favor of its foreign political aims.

Appraisal and Conclusion

This paper investigated the hypotheses derived in the light of IR and energy politics literature. In the analyses of energy interdependence–foreign policy affinity nexus, the results show strong support for the hypothesis that energy interdependence increases dyadic foreign policy affinity. Out of four primary energy resources, natural gas appeared as the powerful weapon to promote dyadic convergence in foreign policies. Moreover, the test of claims regarding Russian energy policy reveals the empirical support for these claims. Although energy dependence to Russia does not lead importers to bend to Russian wishes in foreign politics, it proves effective in splitting them from the foreign policy orbit of the US. Particularly, natural gas appears as the powerful weapon to induce such a split. The results obtained in this study may inform policy-makers in the MENA region about the importance of having control on valves of energy, which is conducive to states' foreign policy objectives in the world politics.