

# Arms and Electoral Influence: How Arms Deals with Autocratic Allies Shape Defense Contracting in the United States

Joshua Alley  
Assistant Professor  
University College Dublin\*  
joshua.alley@ucd.edu

August 14, 2023

## Abstract

Arms deals with U.S. allies, especially autocratic allies, increase defense contracting in swing states. U.S. leaders make arms deals to award more defense contracts and improve economic conditions in pivotal electoral areas. Autocratic alliance protégés have the desire and political flexibility to strike arms deals near elections. I examine these claims by analyzing the electoral determinants of defense contracting and arms deals. First, I detail electoral cycles in arms deals between the United States and autocratic allies. I then link defense contract awards to swing states and arms deals. Finally, I show that aircraft are the primary subject of arms deals cycles and aircraft deals are strongly correlated with swing state contracts for aircraft. As a result, electoral competition reshapes international security cooperation.

---

\*Thanks to Brian Blankenship, Jonathan Caverley, Jonathan Chu, Ben Fordham, Erik Lin-Greenberg, and Zachary Markovitch as well as participants in the Boston University Political Economy of Security Online Workshop Series and 2022 Meeting of the International Studies Association for helpful comments.

# 1 Introduction

In the middle of the 1972 presidential election, the Nixon administration struck ten different deals to transfer or sell arms to Brazil. Over the next four years, Brazil's military dictatorship received 500 M-113 armoured personnel carriers, five destroyers, seven submarines, and eight S-2E Tracker anti-submarine warfare aircraft. These deals came while Nixon sought reelection and subsequent deliveries continued after his 1974 resignation.

Something similar happened during the 2012 presidential election, when Saudi Arabia ordered a large arms package from the Obama administration.<sup>1</sup> Twelve deals included 400 Harpoon anti-ship missiles, 12 Apache attack helicopters for the Saudi National Guard, and 63 K-6 120mm mortars, along with parts for F-15 aircraft, guided bombs, and other helicopters. Deliveries of these systems and other weapons spanned the next eight years, including the 2015 Saudi intervention in the Yemeni civil war.<sup>2</sup>

These examples reflect a more general pattern, where electoral competition in the United States encourages arms deals with allies, particularly autocracies. Arms deals help leaders use defense contracting to improve economic conditions and increase their odds of retaining power (Tufte, 1978; Mintz, 1988; Mayer, 1995; DeRouen Jr and Heo, 2000; Becker, 2021). Specifically, arms deals increase defense contract awards in swing states. Electoral cycles in arms deals thus shape economic conditions and electoral competition.

Alliance protégés provide a key market for arms deals because leaders can justify transfers and build on existing security cooperation. Allies are also willing to make arms deals because they control import decisions and taking arms makes them more secure. Autocratic allies are especially important because they rely more on arms for security than other partners (McManus and Yarhi-Milo, 2017) and autocrats have few constraints on accommodating electoral cycles.

---

<sup>1</sup>Obama first announced the deal in 2010.

<sup>2</sup>All deal information from (Sto, 2022).

I scrutinize my argument connecting defense contracting in swing states, autocratic allies and arms deal cycles in three steps. First, I analyze U.S. arms deals from 1950 to 2014, and show that arms deals with autocratic allies increase as presidential elections approach, while arms deals with democratic allies remain consistent. Second, I estimate the association between arms deals and contract awards to swing states, and find that arms deals have little association with contracts outside of swing states, but increase contract awards in swing states. Finally, I corroborate these correlations by establishing that the same weapons systems move in arms deals and the correlation between deals and swing state contracts. The last analysis suggests that aircraft are the most important weapons platform in these cycles, as aircraft have the strongest evidence of arms deals cycles with autocracies, and aircraft deals increase swing state contracts to produce aircraft.

The pivotal economic and security roles of the United States make understanding the economic and security consequences of U.S. electoral competition worthwhile. The United States is the leading arms exporter, maintains expansive alliance ties, and there is prior evidence that leaders use defense contracting for electoral advantage (DeRouen Jr and Heo, 2000). Other states might leverage security cooperation to facilitate different policy cycles, however.

The argument and findings address three salient issues in international relations theory and practice. First, they reveal that efforts to manipulate domestic economic conditions with defense contracting have international security consequences. Just as domestic political business cycles in large countries reshape economic conditions (Kayser, 2006, 2009), electoral competition alters security cooperation.

Second, this paper provides new insight into alliance bargaining and statecraft. Work on these issues often examines coercion and divergent preferences (Oatley, 2015; Wolford and Kim, 2017; Blankenship, 2020; Becker et al., 2023). But as Baldwin (2020) notes, statecraft also includes positive inducements. This paper highlights positive statecraft by alliance protégés, who use arms deals to cooperate with their patron. As a result, it connects with prior work on

issue linkage in alliance management, including studies of alliance formation (Poast, 2012) and credibility (Davis, 2008; Poast, 2013). When arms deals help leaders keep office, patron leader and protégé incentives align.

Finally, my results complement prior findings that foreign states' economic policies impact electoral competition. Kim and Margalit (2021) find that Chinese tariffs reduced Republican vote share in the 2018 midterm elections by targeting industries in competitive districts. In the same way, Chyzh and Urbatsch (2021) find that Chinese soy tariffs hurt Republican congressional candidates in soy-producing areas. My argument inverts these findings by considering how security cooperation opens up new tools for manipulating economic conditions. Electorally driven arms deals are an indirect way smaller partners influence alliance patrons (Keohane, 1971).

The paper proceeds as follows. To start, I outline an argument detailing the international consequences of political business cycles in the United States, the role of defense contracting in those cycles, and the consequences for arms deals with autocratic allies. I then test the process in three steps. First, I demonstrate that arms deals between the United States and autocratic allies increase as presidential elections approach. I then show that arms deals are correlated with increased defense contract awards to swing states. Third, I examine which weapons drive deals cycles and increased swing state contracts, and find that aircraft are the most salient platform in both relationships. The last section discusses the results and offers concluding thoughts.

## **2 Argument**

This argument claims that international arms deals facilitate defense contract awards in swing states. To begin, I detail constraints on aggregate budget cycle tools. I then discuss how presidential control and Congressional influence makes defense contracting an attractive way to manipulate economic conditions and how Arms deals with allies can accelerate

defense contracting awards. Among U.S. allies, autocracies with less constrained leaders and strong security motivations to make arms deals are especially likely to make arms deals around elections.

Electoral considerations impact policy (Nordhaus, 1975).<sup>3</sup> When leaders want to win office, they can use policy tools to bolster economic growth and win over voters. Leaders create political budget cycles by using fiscal and monetary policy to increase economic growth near elections and retain power for themselves or their party (Tufte, 1978; Rogoff, 1987).

The composition and magnitude of these cycles varies. Strong central bank interdependence and fixed exchange rates make fiscal cycles more likely, for instance (Clark and Hallerberg, 2000). Federal Reserve independence limits political influence on monetary policy in the United States. In fiscal policy, aggregate budgets often have limited spending discretion.

Given challenges with using aggregate economic instruments, recent scholarship on political cycles emphasizes targeted policies. Focused manipulations maximize the electoral impact of finite resources. Many spending shifts can be narrowly tailored (Dubois, 2016, pg. 248). Leaders also employ other policies such as trade disputes (Conconi et al., 2017), labor agreements (Ahlquist, 2010) and land reform (Philips, 2020) to win support in key constituencies.

Scholars have long speculated that defense spending is a useful instrument for budget cycles (e.g. Tufte (1978); Mintz (1988)). Executive leaders often have more discretion in defense resource allocation, and defense spending impacts economic conditions. Whitten and Williams (2011) note that defense spending can serve social welfare goals and Becker (2021) finds that unemployment in NATO members encourages leaders to shift spending from equipment to personnel.

Studies of the United States argue that defense budgets are poor political tools, however, as Congress makes allocations two years ahead. This shifted attention towards defense contracting, as leaders control contract timing and disbursement (Mayer, 1995; DeRouen Jr and Heo,

---

<sup>3</sup>See Dubois (2016) for a review of the vast political budget cycle literature.

2000). Giving contracts also allows leaders to focus on key constituencies and claim credit for contract awards (DeRouen Jr and Heo, 2000).

In the United States, leaders target spending changes near elections to electorally important areas. For presidents, swing states are the most important regions (Kriner and Reeves, 2015). Swing states are competitive and hold the balance in the Electoral College. Targeted spending also works, as it increases support for incumbents (Kriner and Reeves, 2012).

Increasing contract awards also has limits, however. The defense budget places some constraints on contracting levels. Also, leaders want to award more contracts, the U.S. military may lack absorption capacity to incorporate outputs. Political increases in supply of defense contracting may not respond to military demand. This makes finding other buyers who are less constrained by the U.S. budget process necessary.

Foreign markets are an alternative source of demand for defense goods. Either foreign countries can take new production, or U.S. leaders can sell or transfer old equipment to partners to make room in U.S. stocks. When this occurs, using defense contracting for political gains has international spillovers.<sup>4</sup>

Leaders only need deals and confirmed orders to award contracts to electorally important areas. Final transfers can and often do come years later. Arms deals are more likely to follow electoral cycles than transfers of finished defense goods, as production times vary widely. Large platforms like ships, tanks and warplanes can take years to assemble, while munitions and smaller platforms take less time.

When U.S. leaders attempt to use arms deals to stimulate defense contracting, not all countries are useful partners. U.S. allies are more likely to take arms exports than other states.

---

<sup>4</sup>Other work examines the international economic consequences of budget cycles. Fiscal and monetary policy shifts impact currency prices and economic growth, which then alters trade and financial ties. Economic interdependence leads to correlated economic growth across countries (Artis and Zhang, 1999; Kayser, 2006) and increases the global economic influence of large economies. Ito (1991) finds that U.S. elections increase economic growth in Japan, while Thompson and Zuk (1983) uncover some evidence of similar cycles in advanced industrial economies. Foerster and Schmitz (1997) argue that U.S. electoral cycles impact international stock returns.

Security partners are a pivotal outlet because alliances facilitate security, economic and political cooperation and leaders can more easily justify arms deals with allies. The United States often transfers or sells arms to alliance protégés, and autocratic allies have means and motivation to strike arms deals that follow the electoral cycle.

## *2.1 Alliances and U.S. Arms Deals*

Asymmetric alliances like pacts between the United States and its allies are grand bargains. In general larger patrons protect smaller protégés in exchange for foreign policy concessions (Morrow, 1991). While patrons increase their foreign policy influence, junior alliance members garner protection from external threats and sacrifice some foreign policy autonomy.

U.S. allies are an obvious market for deals to feed defense contracting, because established channels reduce start-up costs and facilitate cumulative deals.<sup>5</sup> Thurner et al. (2019) find that while the relative importance of security and economic factors fluctuates, alliances consistently increase arms transfers. Common security interests and defense industrial cooperation create economic and security ties that encourage arms trade (Bitzinger, 1994). Defense industry integration generates trade in intermediate defense goods (Brooks, 2005). U.S. allies that rely on American weapons, systems and doctrines can also integrate new weapons more easily and make new deals that build on past orders.

Allies are more likely than other states to make arms deals, and autocratic allies are especially likely to make arms deals near elections. The security externalities of arms transfers constrain electoral cycles in arms exports to non-allies. U.S. leaders will be less willing to increase the capability of states with fewer common interests, even if it facilitates contracting cycles.

Other U.S. elites are also more likely to object to arms deals outside alliances. Leaders could suffer electoral costs if other elites publicly criticize deals (Saunders, 2022). Arms transfers to

---

<sup>5</sup>I focus here on formal and informal allies, because formal treaties like NATO are not the only U.S. security commitments. Taiwan, Israel and Saudi Arabia have informal security guarantees and often receive U.S. arms. (Yarhi-Milo, Lanoszka and Cooper, 2016)

non-allies could face greater opposition scrutiny near elections, leading presidents to forestall criticism by forgoing contentious transfers. Limited defense industry cooperation further constrains exports outside alliances, while allies with defense industrial ties can receive intermediate goods as well.

Allied leaders also benefit from arms deals around elections, because they increase their security. Helping patron leaders with arms deals will dispose them more favorably towards an ally. Allies increase their military capabilities with new arms as well, which can make their fighting forces more effective. Finally, allies gain confidence in their patron's commitment when deals become deliveries because arms exports are a costly signal (McManus and Yarhi-Milo, 2017).

Moreover, protégés do not always pay for U.S. arms. The United States often subsidizes or gifts arms transfers through foreign military sales programs. While these still count as arms exports, they impose few immediate costs on recipients. Alliances make such subsidized transfers easier to justify to other elites, as they promote common security interests.

Arms deals are therefore positive statecraft by allies. States often use purchases and transfers to increase their political influence (Baldwin, 2020, pg. 42–3). Ikenberry and Grieco (2003, pg. 184–5) note that states often use direct transfers to attract and sustain security commitments.

## ***2.2 Arms Deals with Autocratic Allies***

While all allies could benefit from U.S. arms, autocratic allies are more likely to make arms deals near elections. Autocracies have greater means and motivation to make arms deals than democracies. Autocratic leaders have fewer domestic political constraints, which increases their budget and policy flexibility. They also have stronger security motivations to use arms deals to improve relations with the United States, because arms transfers are central to U.S. security guarantees to autocracies.

Allied leaders must have the political freedom to make arms deals. Governments are the



customer for most arms sales or transfers, so they generally have some latitude to take arms.<sup>6</sup> At the same time, not every regime is equally free to make arms deals.

Autocratic allies of the United States have greater political flexibility to make arms deals around elections than democracies. Democratic leaders who might face media or elite scrutiny of deals for U.S. arms. Media or elites might object to spending on arms, competition for domestic arms manufacturers, or excessive alignment with the United States. Democratic allies are more likely to engage in joint production of weapons systems, for the domestic political benefits it brings and because they have greater rapport with the United States.

Autocrats are less constrained. Even if other domestic actors in an autocracy are opposed to additional outlays on U.S. arms, they have few ways to constrain the leader.<sup>7</sup> Media scrutiny of deals is also less likely to occur or challenge an autocrats power base.

Autocrats also strike deals to bolster their security. Arms transfers are more central to credible U.S. commitments to autocracies. The United States prefers “offstage” signals of support for autocrats, rather than public demonstrations of commitment (McManus and Yarhi-Milo, 2017). Arms transfers are a pivotal offstage signal and sometimes substitute entirely for formal security guarantees (Yarhi-Milo, Lanoszka and Cooper, 2016). When arms are essential to U.S. security commitments, autocrats will be more willing to make arms deals that increase military capabilities and signal continued alignment with the United States. This mirrors how democracies often use aid to get foreign policy concessions from autocracies (De Mesquita and Smith, 2009), but cannot make similar bargains with democracies.

Autocrats also have fewer other tools to curry favor with U.S. leaders. Formalizing an informal alliance might promote democratization (Gibler and Wolford, 2006; Warren, 2016). The U.S. public dislikes alliances with autocracies (Alley, 2022), so autocrats have less capacity to pursue deeper ties in other areas. The net result is that arms deals are central to U.S. ties with

---

<sup>6</sup>This mirrors how political control of firms increases trade policy flexibility (Davis, Fuchs and Johnson, 2019).

<sup>7</sup>This changes when opponents of U.S. arms deals are part of the autocrats power base.

autocratic security partners, so autocrats are more likely to make arms deals near elections.

This argument is agnostic about whether allies make a conscious decision to help political budget cycles by making arms deals. While they want improve their alliance relationship, U.S. allies need not choose to accommodate electoral cycles in defense contracting. Allies may receive better terms and more financial support to take additional goods, or take transfers or surplus materiel as a deliberate favor to U.S. leaders who support their foreign policy interests.

A potential objection to this argument is that striking arms deals with autocrats might be more costly near elections for U.S. leaders, because political opponents could criticize them for it. In this telling, opposition elites can make arms deals a more “front stage” signal than U.S. leaders prefer. Even if this applies, U.S. leaders may still benefit, as arms deals provide concentrated benefits, while alliance critics are more diffuse. Opponents thus face collective action problems that beneficiaries of deals and corresponding contracts do not. When contracts focus on electorally salient areas, leaders can expect that the benefits outweigh any costs.

## ***2.3 Implications***

The argument generates two testable implications about U.S. alliances, arms deals and defense contracting. Again, this argument applies exclusively to the United States. Arms deal cycles and defense contracting in swing states are the result of a large defense industry, expansive security commitments and the peculiarities of the electoral college. Fixed election scheduling further reduces endogeneity between policy decisions and election timing. Other leaders may behave in similar ways within their electoral institutions, however.

The first hypothesis predicts electoral cycles in arms deals, especially to autocratic allies. Democratic allies will be less likely to make cyclical arms deals. As a result, greater proximity to presidential elections will increase arms deals with autocratic allied states.

**ARMS DEALS HYPOTHESIS: AS TIME TO A PRESIDENTIAL ELECTION DECREASES, U.S.**

#### ARMS DEALS WITH AUTOCRATIC ALLIES WILL INCREASE.

Second, I expect that arms deals increase contract awards in swing states. Striking deals allows leaders to award contracts to electorally competitive areas. Winning swing state is essential for presidents who want to win re-election or retain control of the executive branch for their party. Outside of swing states, arms deals are less likely to increase contract awards.

#### DEALS AND CONTRACTS HYPOTHESIS: AS ARMS DEALS INCREASE, SWING STATE CONTRACT AWARDS WILL INCREASE.

Next, I examine both hypotheses. In the first analysis, I test the arms deals hypothesis with data on U.S. arms deals from 1951 to 2014. The second analysis tests the deals and contracts hypothesis with state-level defense contracting data from 2000 to 2020. Finally, I check the process by establishing that the same sectors of the defense industry with strong evidence of arms deals cycles also have the strongest association between deals and contracts.

### 3 Arms Deals and Presidential Elections

The arms deals hypothesis predicts electoral cycles in U.S. arms deals with autocratic allies. To test this hypothesis, I model U.S. arms deals from 1951 to 2014 using deals data from the SIPRI Arms Transfer Database (SIPRI, 2021). The outcome in this panel dataset of all states outside the United States is the annual count of deals, based on SIPRI's trade register.<sup>8</sup> This section presents count data regression estimates of annual arms deals.

I analyze arms deals rather than observed arms transfers for three reasons. First, elites can announce arms deals and related contracts immediately. Secondly, deliveries can take years after a deal is announced, even for second-hand or aid transfers of existing equipment. Finally,

---

<sup>8</sup>SIPRI's trade register captures individual transfers of specific platforms, and marks deal start, years of delivery, and deal completion.

deliveries often space out the total value of a shipment over several years, especially for deals with many weapons or larger platforms.

The argument suggests that three variables interact to shape U.S. arms deals. The first is electoral competition, which I measure with an indicator of the number of years to a presidential election. As years to an election decrease, electoral competition increases.

The second key factor is whether a country is a U.S. ally. I measure alliance status with a binary indicator of whether a country is a formal U.S. treaty ally using data from the ATOP project (Leeds et al., 2002). I also include three states that have not always had a formal treaty commitment but are widely seen as U.S. allies; Israel, Taiwan and Saudi Arabia. I include informal allies because in some of these cases arms substitute for a formal alliance, but the United States is still supporting a partner's security (Yarhi-Milo, Lanoszka and Cooper, 2016). All three countries with informal alliances have implicit security guarantees that are similar to U.S. treaties with other countries.

Finally, I measure recipient democracy using the VDem project's polyarchy measure (Coppedge, Alvarez and Maldonado, 2008). Polyarchy provides a fine-grained summary of democratic institutions and contestation. It also suggests that Saudi Arabia, Iran, and Latin American juntas are the most autocratic U.S. allies, so it has some face validity.

Because many countries make no arms deals, I use a hurdle Poisson model to estimate how the interaction of alliances, democracy and election timing shape arms deals.<sup>9</sup> The hurdle component captures that some countries are unlikely to make any arms deals, and fits the annual count of arms deals well. For ease of estimation and calculation, I use Bayesian estimation with the *brms* package for R (Bürkner, 2017). I show in the appendix that Gaussian, Poisson and zero-inflated Poisson models give similar inferences.

Along with the three key independent variables, I adjust for other factors that are correlated

---

<sup>9</sup>Simple Poisson models under-predict zeros, while negative binomial models predict over-predict large values. See the appendix for details.

with arms deals, alliances, and democracy. The first control variable is a binary indicator of Cold War years, as the United States had more autocratic allies during this period. I also adjust for EU membership as a potential constraint on some states. Further country-year level controls include militarized dispute involvement, logged GDP, population, and distance the from United States, as well as a binary indicator of common language. Finally, I adjust for presidential partisanship with a dummy indicator of years with a Republican president.

In the hurdle equation of the model, I use three predictors to capture whether a country will make any arms deals with the United States. First, I include the binary indicator of alliance status, because non-allied states are less likely to make arms deals. I also include an indicator of whether a country is engaged in an active militarized dispute. Finally, I include the log of GDP, because wealthier countries have greater means to buy U.S. arms.<sup>10</sup>

### 3.1 Results

Because interpreting coefficients in triple interactions is challenging, I summarize the interaction of alliances, democracy and presidential election proximity in Figure 1.<sup>11</sup> This figure plots predicted arms deals based on proximity to a presidential election and whether a state is a U.S. ally or not. Each facet fixes recipient democracy at the minimum, first quartile, median, third quartile and maximum.

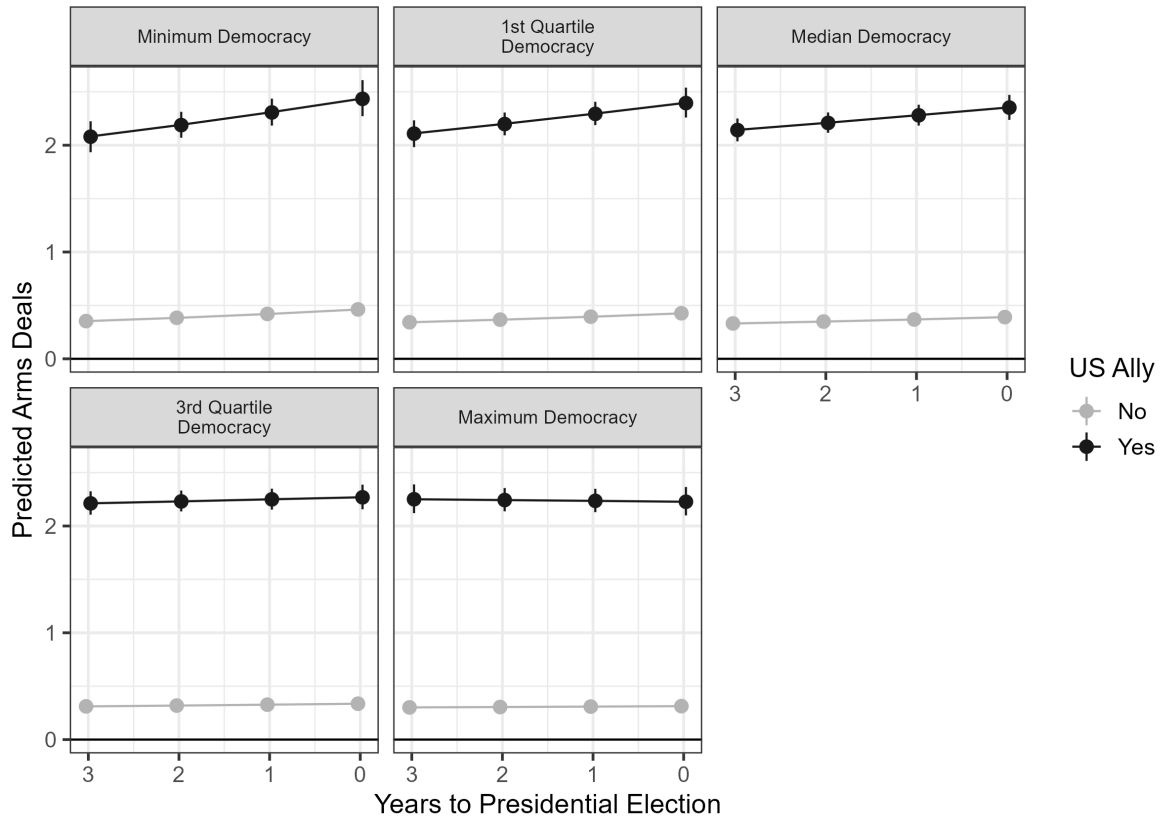
There are two key inferences in Figure 1. First, the United States makes more arms deals with allied states than non-allied states, regardless of partner regime. Predicted deals with non-allied states are low and basically constant across the different levels of democracy. The impact of an alliance on arms deals is much greater for democracies than autocracies. A hypothetical U.S. ally with the maximum polyarchy scores receives two more arms deals a year than one with similar democracy and no alliance, all else equal. Greater defense industry integration

---

<sup>10</sup>The regression coefficients use a normally distributed prior distribution and a mean of zero and standard deviation of .5.

<sup>11</sup>See the appendix for coefficient estimates.

## Elections and Arms Deals



**Figure 1.** Predicted arms deals between the United States and other states 1950 to 2014 based on presidential election proximity, democracy, and security alliances. Estimates derived from a hurdle Poisson model. Points mark the estimates and error bars summarize the 90% credible interval.

could explain this difference (Brooks, 2005).

The second inference is that electoral cycles in arms deals are present for autocratic allies and absent for democratic allies. When allied polyarchy is at the minimum, predicted arms deals rise from 2.08 to 2.43 throughout the presidential election cycle. Hypothesis tests of equality between allied arms deals at minimum democracy at each level suggest that the increase of .11 deals in each year of the electoral cycle is clearly positive.<sup>12</sup> The electoral cycles when democracy is at the 1st quartile or median are also clearly positive, but smaller. This cycle diminishes as allied democracy increases, so allies with a polyarchy score at the third quartile or higher see no change in arms deals as elections approach.

Electoral cycles are strongest for autocratic allies. States that are not US allies see no change in arms deals throughout the electoral cycle. Alliances increase the level of arms deals, and regime type increases responsiveness to presidential elections.

These estimates support arms deals hypothesis. As presidential elections approach, arms deals with autocratic U.S. allies rise. Arms deals with democratic allies are unchanged by electoral competition.

The argument claims that these arms deals with autocratic allies near elections are connected to defense contracting in swing states. The next analysis examines that prediction.

## 4 Arms Deals and Defense Contracting

Connecting arms deals and defense contracting is challenging. Deals occur between countries, while defense contracting for electoral purposes takes place within US states. While jointly modeling deals and contracts is theoretically possible, summing country-year deal estimates into an annual measure of total deals creates an aggregation problem. In the interest of simplicity, this analysis uses observed annual deals, electoral competition and state-level factors

---

<sup>12</sup>The entire posterior mass of the difference is positive, with a 90% credible interval that ranges from .05 to .17.

to predict defense contract awards from 2001 to 2020.

I draw the outcome measure from Department of Defense prime contract award data in the USAspending.gov database.<sup>13</sup> This archive contains individual contract awards from 2000 to 2020.<sup>14</sup> While other contracts data have longer temporal coverage, they have substantial drawbacks. I use the individual contracts data because it provides enough detail to examine the role of electoral geography, and later to link specific types of arms deals and defense industry sectors.

The key outcome is total defense contracts awarded to each state every year, measured in millions of US dollars. I focus on contracts for arms production, because arms deals should have little impact on contracts for things like construction equipment or food. While connecting these contracts to foreign military sales is not possible, the narrow focus on arms production and subsequent analysis matching weapons systems and contracts mean that this approach still provides a useful test.

Total defense contracts are also challenging to model, because some states have no weapons contract awards in a given year, and other states receive billions of dollars in contracts. This creates a zero-valued and right-skewed outcome. Traditional approaches, such as logging the outcome after adding one, are sensitive to the scale of the outcome and the constant added (Chen and Roth, 2022; Mullahy and Norton, 2022). Transformations with such data make calculating substantive effects challenging and potentially biased.

To overcome these issues, I fit two types of models. First, I rescale the defense contracts measure to fall between zero and one by expressing each state's contracts as a share of total defense contracting in that year. I then use ordered beta regression to predict the rescaled outcome (Kubinec, 2022).<sup>15</sup> This allows me to use a flexible outcome distribution, account for

---

<sup>13</sup>Link here: [https://www.usaspending.gov/download\\_center/custom\\_award\\_data](https://www.usaspending.gov/download_center/custom_award_data).

<sup>14</sup>I analyze defense contracting in these years because archive starts in the 2000 fiscal year and some state-level controls have limited coverage after 2020.

<sup>15</sup><https://www.robertkubinec.com/post/logs/>



zeros and avoid scale-effects from log-transformations and working with outcomes in millions of dollars. Changing the coefficients and marginal effects to the scale of contracts after this is straightforward, as I simply multiply the model estimates by the rescaling constant. I also fit a hurdle lognormal model that models the probability a state receives no contracts, as well as the roughly normally distributed log of non-zero contracts. Both approaches give similar inferences.<sup>16</sup>

The key independent variable is total annual arms deals. To measure arms deals, I sum US arms deals with all countries in every year. Total deals range from 75 to 160.

Because the argument expects that deals drive contracts in areas with high electoral competition, I include a dummy indicator of swing state status from Kriner and Reeves (2015). Swing states are states where the losing party won at least 45% of the two-party vote in three straight elections. I then interact this dummy with total US arms deals. In that interaction, constituent term of arms deals, which expresses the association between deals and contracts outside of swing states, should be close to zero or negative. Because there are no years with zero US arms deals, the swing state constituent term is not directly meaningful. The interaction term for swing states and annual deals should be positive, according to the deals and contracts hypothesis.

In addition to the electoral competition and deals variables, I include several controls. First, I adjust for population and GDP, because larger and more prosperous states receive more contracts. Other electoral competition indicators include the time to a presidential election and whether a state is a core member of the president's coalition (Kriner and Reeves, 2015). I also control for increased defense contracting demand during peak years in the global war on terror with a dummy variable that is equal to one from 2001 to 2011. The final control adjusts for presidential partisanship by coding years with a Republican President with one.

---

<sup>16</sup>The hurdle-lognormal results are in the appendix, along with estimates from OLS on untransformed contracts. All estimation uses brms for R (Bürkner, 2017).

Further adjustments in the model account for the data structure. First, I include state varying intercepts because observations cluster within states. Current contracting also depends on past contracting, as the defense industrial base concentrates in particular states. I therefore include a state-specific lagged dependent variable, which allows temporal dependence in contracting to vary by state.<sup>17</sup>

## 4.1 Results

Because one of the interaction coefficients has no substantive meaning, I focus on marginal effects and predicted outcomes. In Figure 2, I present the impact of deals, swing state competition, and predictions from the interaction. All these estimates suggest that deals increase defense contracting awards to swing states. To examine the conditional effect of deals, I use the positive posterior mass of the interaction term, because the deals and contracts hypothesis is directional.<sup>18</sup>

First, the impact of increasing arms deals on defense contracting is unclear outside of swing states, but clearly positive in swing states. Only 34% of the posterior mass in the deals constituent term is positive, so there is little evidence that deals increase contract awards outside of swing states. Full 97% of the posterior mass of the deals and swing state interaction is positive, however. The preponderance of evidence supports the deals and contracts hypothesis.

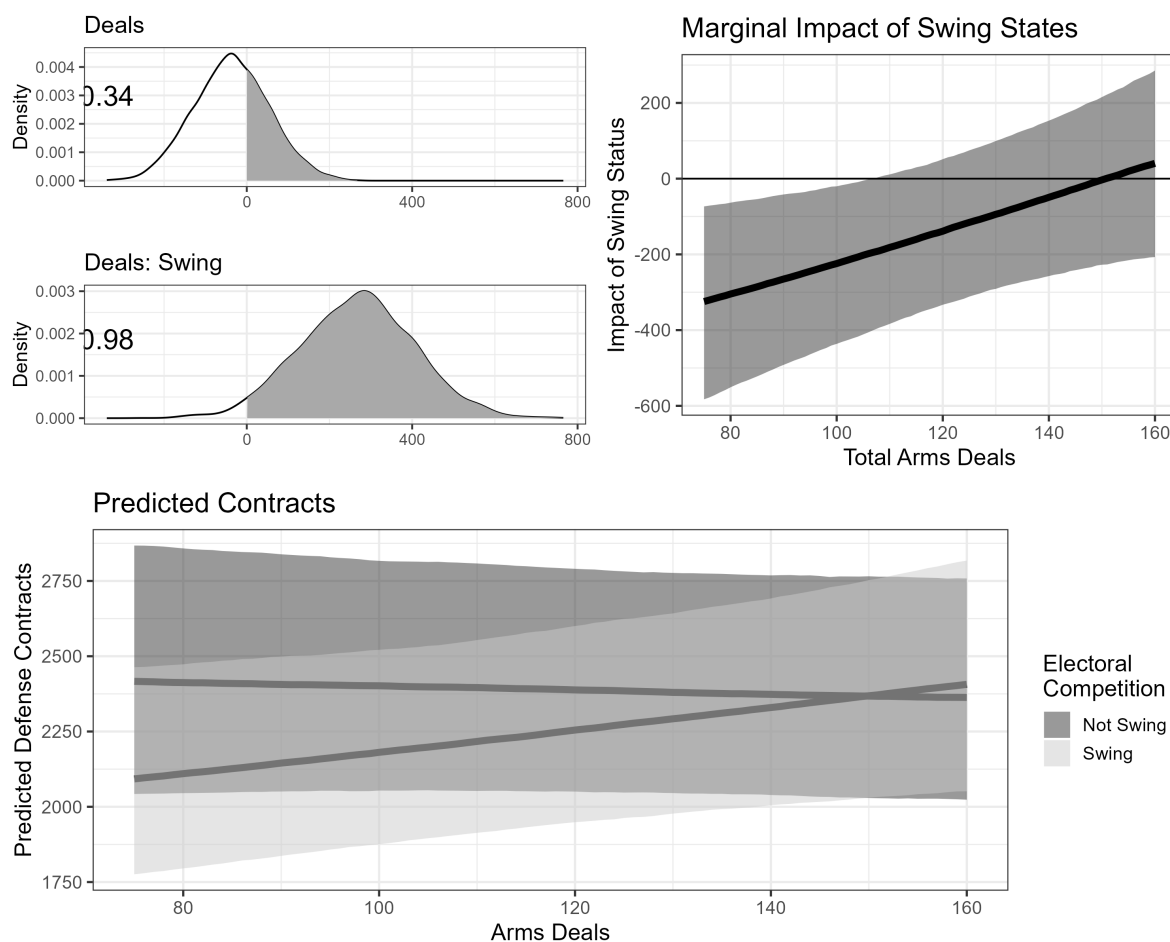
The coefficient estimates in Figure 2 imply that moving from the first to the third quartile of deals increases defense contracting by \$202 million in a swing state, all else equal. Greater deals marginally decrease contract awards because the share of contracts that go to swing states rise in election years. Leaders can thus use arms deals to target critical constituencies.

Second, swing states receive more defense contracts increases in years with more arms deals.

---

<sup>17</sup>See the appendix for descriptive evidence that temporal dependence in contracting varies by state, along with a summary of the state-level autoregressive parameters.

<sup>18</sup>For all other intervals, including the marginal effect of swing status and outcome predictions, I again use 90% credible intervals, because these are less sensitive to simulation variance in Bayesian analysis.



**Figure 2.** Marginal effects and predicted outcomes from an interaction of swing state status and US arms deals. The outcome is annual defense contracts in the 50 US states from 2001 to 2020, measured in millions of dollars. Lines and points give the expected value, while the error bars summarize 90% credible intervals. All other variables fixed at the mode or median.

At the observed minimum of arms deals, swing states receive \$2.50 billion less in contracts. The swing state disadvantage occurs because larger states like California and Texas have substantial defense industries and are not swing states. When arms deals are near the observed maximum, swing states receive similar contracts to other states.

Finally, predicted defense contracts increase as arms deals increase, but only in swing states, as the bottom panel of Figure 2 shows. Holding all else equal, increasing arms deals lead to greater contracts in swing states. But defense contracts in non-swing states do not respond to increasing arms deals. As a result, the usual gap in defense contracting between swing and other states disappears in years with above-average arms deals.

These estimates support the defense contracts hypothesis. Increasing arms deals are correlated with greater defense contracts in swing states. As a result, swing states receive similar contracts to other states with established defense industries, larger economies and less electoral competition.

Given these marginal effects, calculating the partial impact of alliances and allied regimes on deals and ultimately contracts is straightforward. Across the electoral cycle with eight hypothetical countries of varying democracy and alliance status in Figure 1, there is one more arms deal in the election year, compared to the year after an election. The marginal effect of arms deals is \$3.6 million, so the hypothetical cycle in deals and contracts adds several million in defense contracting to one swing state.

## **5 Which Weapons Drive Deals and Contracts?**

The final analysis examines which weapons systems change hands in US arms deals with autocratic allies and checks whether the same systems are correlated with swing-state contract awards. Showing that the United States makes more deals for specific weapons as elections approach, and that the same deals are correlated with defense contract awards in swing states

increases confidence that the models above reflect the theoretical process. I find that aircraft are the most common subject of arms deals with autocrats near elections, and that aircraft deals also increase swing state contracts for aircraft production.<sup>19</sup>

To analyze these factors, I fit the same models of arms deals and defense contracts, but divided deals and contracts into six sectors. Those defense industry sectors include aircraft, arms and munitions, military electronics, missiles and space technology, ships and vehicles. Each of these sectors has a distinct production geography and arms deal dynamics.

In the deals analysis of the the different sectors, I fit six hurdle Poisson models, one each type of arms deals. These models use the same covariates as the aggregate arms deals model; a triple interaction of alliance, democracy and election timing, along with a series of controls and a hurdle equation. Using the hurdle again improves model fit, as zero deals are more likely within sectors.

For ease of presentation, I plot predicted arms deals at the minimum and maximum of partner democracy in Figure 3.<sup>20</sup> The estimates suggest that aircraft are the core weapons system in electoral cycles in arms deals with autocratic allies. Military alliances strongly increase the likelihood of arms deals for aircraft and allied regime type determines whether aircraft deals follow presidential election cycles. Aircraft deals with autocratic allies are the most common deal overall, and these deals rise as presidential elections approach. While aircraft deals with democratic allies are also common, they are less responsive to election timing.

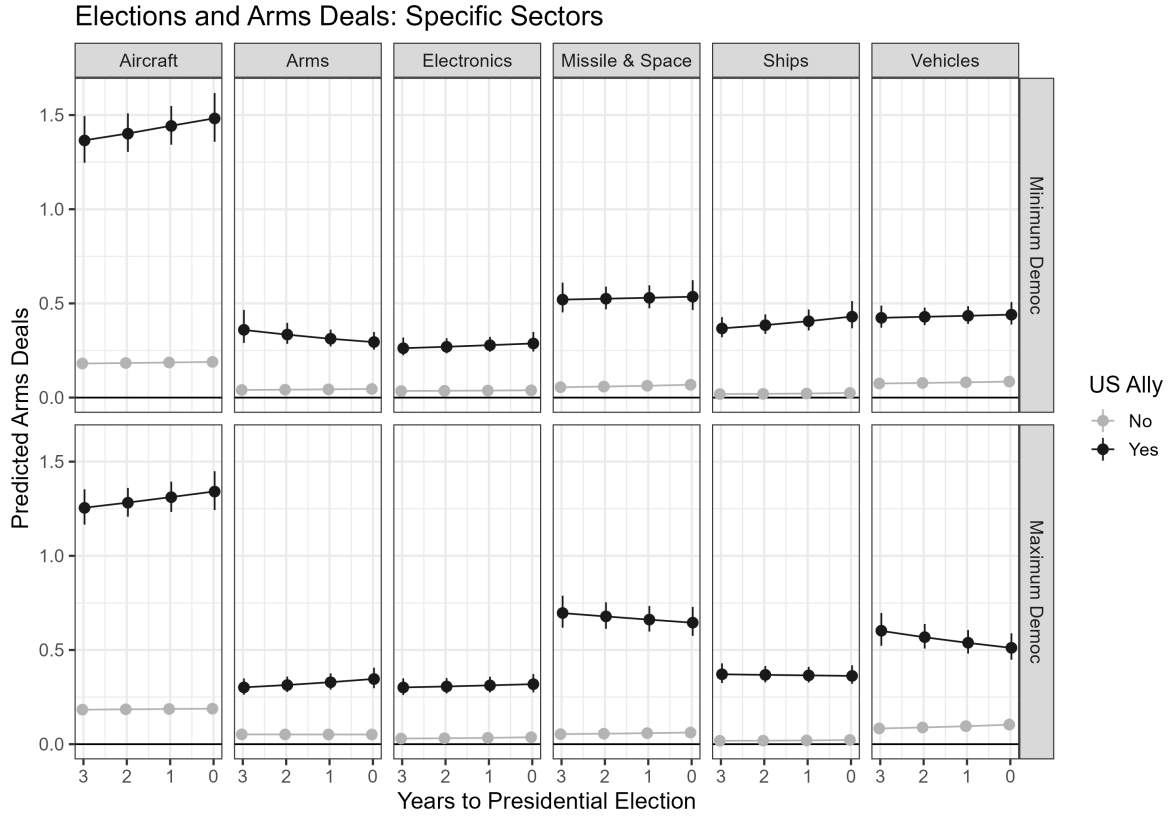
Among autocracies, alliances increase deals for ships, and ship deals increase with electoral proximity. Allies make more ship deals at all levels of democracy, but only autocratic allies make more deals near elections. Ships could thus contribute to efforts to use arms deals to feed defense contracting.

Other weapons show less evidence of cycles in arms deals. Deals for arms and other mu-

---

<sup>19</sup>These correlations do not establish exact linkages between deals and specific contracts, however.

<sup>20</sup>See the appendix for underlying coefficient estimates.



**Figure 3.** Predicted arms deals between the United States and other states 1950 to 2020 based on presidential election proximity, democracy, and military alliance. Estimates derived from six sector-specific Poisson models counting annual deals divided by the type of military good exchanged. Points mark the estimates and error bars summarize the 90% credible interval.

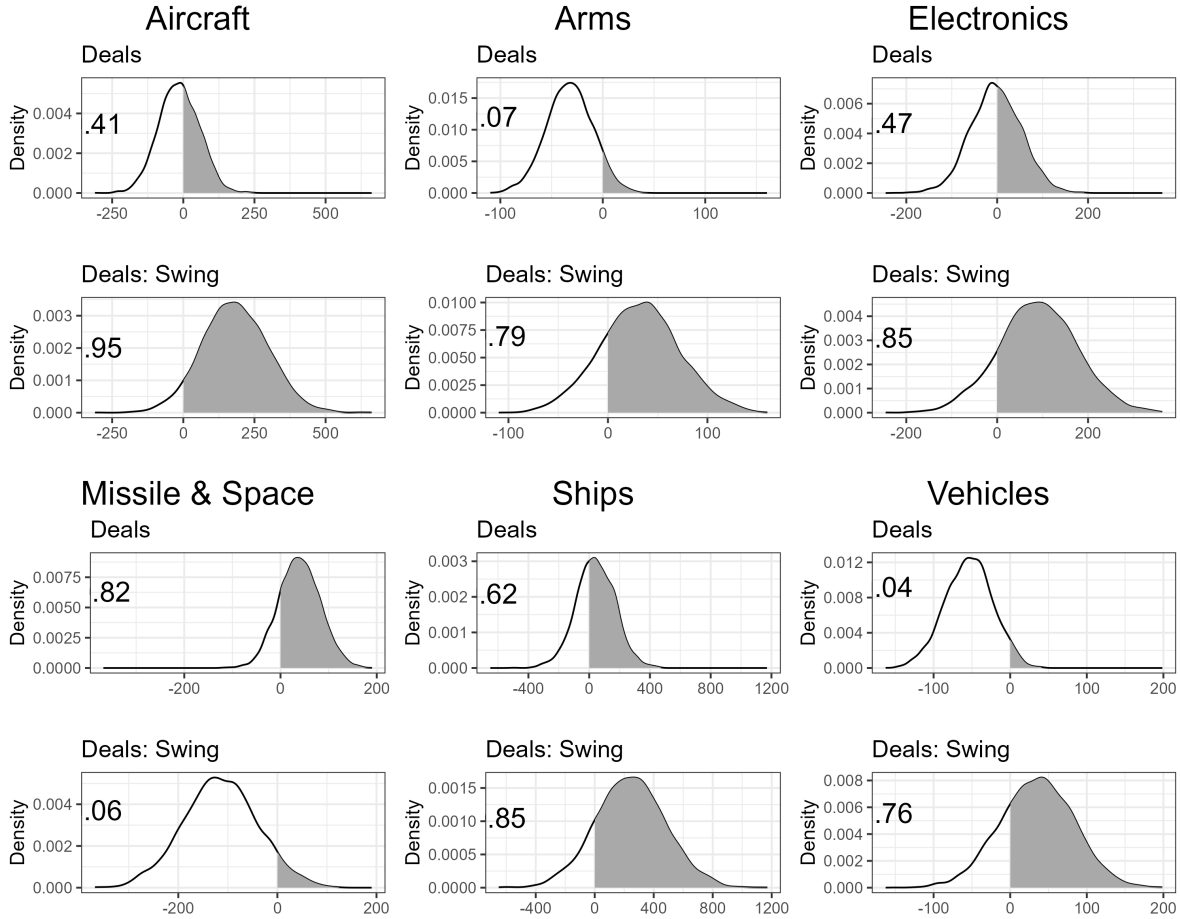
nitions do not depend on democracy or election timing. Democratic allies are more likely to make deals for military electronics and missile/space systems. The importance of democracy and alliances for these goods likely reflects trade in intermediate goods to support joint production, as well as joint operations in NATO and other U.S. alliances.

Neither electronics nor missile and space systems see electoral deal cycles. Deals for military vehicles do not track the electoral cycle either. Among autocracies, alliances make no difference for vehicle deals. Allied democracies see small decreases in deals as elections approach.

To examine the deals and contracts hypothesis for each sector, I also fit six models of defense contracts. This analysis divides total contracts into contracts that are connected to each weapon type. As in the analysis of aggregate defense contracting, I rescale the outcome between 0 and 1 using the annual sum of contracts for those defense goods. I then fit ordered beta regression models of the rescaled outcome, using an identical specification to the aggregate defense contracting model. The key independent variables in these models are observed arms deals in each sector, the binary swing state indicator, and their interaction. I also include terms to capture state varying intercepts, state-specific autocorrelation, and other controls.

Aircraft deals are strongly correlated with contracts for military aircraft in swing states. Figure 4 plots the interaction between different deal types and swing state status. These estimates show the deals coefficients from six ordered beta models, transformed back on the outcome scale. Again, I focus on the positive posterior mass, as this shows the extent of evidence consistent with a directional hypothesis more clearly than credible intervals.

While deals for most systems like arms, vehicles, and missile and space components have largely positive associations with swing state contract awards in their sector, aircraft deals have a large and overwhelmingly positive association. 95% of the posterior mass in the interaction of aircraft deals and swing state status is positive. Some of this likely reflects the highly diffuse supply chain for aircraft, which includes thousands of suppliers for engines, airframes, and other essential goods.



**Figure 4.** Marginal impact of different types of arms deals on corresponding defense contracts. Points mark the estimates and error bars summarize the 90% credible interval. Estimates in millions of US dollars.



In addition to aircraft, ships and electronic deals are largely associated with greater swing state contracts. Increases in ships deals are associated with \$300 million more contracts in a hypothetical swing state. Annual ships deals range from one to 11, so these deals are rare but potentially lucrative. The impact also may not concentrate in shipyards, as most ships deals cover whole platforms, which require components from other regions in the defense industrial base.

While electronics deals are less cyclical, most of the association between electronics deals and swing state contracts for military electronics is positive as well. Electronics manufacturing does not come from arms deals with autocratic allies, but these deals also feed swing state contracts. Similarly, much of the vehicles posterior mass is positive in swing states, though the direction of that association is less clear. Only missile and space production, which is very geographically concentrated, has greater positive mass on the association between deals and contracts outside of swing states.

These results suggest that aircraft are the main component in arms deal cycles and aircraft deals often drive swing state contracts. Other deals in sectors like arms, electronics and ships may also increase swing state contracts, but these are less cyclical. These estimates suggest that the connection between arms deals with autocratic allies and swing state contracts is not spurious, and substantiates the theoretical process.

## **6 Discussion and Conclusion**

The argument and results suggest that arms deals with autocratic allies drive help U.S. leaders increase defense contracting awards in swing states. Arms deals with autocratic allies increase as presidential elections approach. Arms deals also increase swing state contract awards. Aircraft are at the heart of this relationship, as they are most often the subject of arms deals and aircraft deals translate readily into swing state contracts.

Allied economic and security statecraft thus helps U.S. leaders win elections. While this is not a part of formal alliance bargains, these informal linkages are essential to grand bargains between alliance patrons and protégés. Allies need not undertake these cycles deliberately, but making arms deals is part of a cooperative bundle of ties regardless.

These findings add an international security component to the political budget cycle literature. Alliance partnerships can help leaders manipulate economic conditions for electoral gain. By providing an outlet for defense contracting, allies help leaders award contracts with less attention to the absorptive capacity and force planning of the U.S. military.

The argument and findings also complement prior findings that states manipulate international economic and security cooperation to bolster or undermine leaders. To give one example, Chyzh and Urbatsch (2021) show that Chinese soy tariffs reduced support for Republicans in the 2018 midterm elections. Allies have both motive and means to use economic and security cooperation to help leaders. Rather than undermine leaders, allied arms import decisions create positive inducements for regular cooperation.

Future research could proceed in several directions. Exploring the role of defense industry integration and intermediate goods in these arms cycles is critical. Whether there are similar cycles outside the United States is also a worthy subject of future study. Security partners of other alliance patrons may take similar actions in different industries, for instance.

Electoral competition reshapes international security cooperation. Efforts to use defense contracting to improve the economy in swing states encourage arms deals with autocratic U.S. allies. While these deals may empower states to misuse the arms, electoral considerations seem to take precedence.

## References

- Ahlquist, John S. 2010. "Policy by contract: Electoral cycles, parties and social pacts, 1974–2000." *The Journal of Politics* 72(2):572–587.
- Alley, Joshua. 2022. "Elite Cues and Public Attitudes Towards Military Alliances." *Journal of Conflict Resolution* .
- Artis, Michael J and Wenda Zhang. 1999. "Further evidence on the international business cycle and the ERM: is there a European business cycle?" *Oxford Economic Papers* 51(1):120–132.
- Baldwin, David A. 2020. *Economic Statecraft: New Edition*. Princeton University Press.
- Becker, Jordan. 2021. "Rusty guns and buttery soldiers: unemployment and the domestic origins of defense spending." *European Political Science Review* 13(3):307–330.
- Becker, Jordan, Sarah E Kreps, Paul Poast and Rochelle Terman. 2023. "Transatlantic Shake-down: Presidential Shaming and NATO Burden Sharing." *Journal of Conflict Resolution* 0(0):1–35.  
**URL:** <https://doi.org/10.1177/00220027231167840>
- Bitzinger, Richard A. 1994. "The Globalization of the Arms Industry: The Next Proliferation Challenge." *International Security* 19(2):170–198.
- Blankenship, Brian. 2020. "Promises under Pressure: Statements of Reassurance in US Alliances." *International Studies Quarterly* 64:1017–1030.
- Brooks, Stephen G. 2005. *Producing Security: Multinational Corporations and the Changing Calculus of Conflict*. Princeton, NJ: Princeton University Press.
- Bürkner, Paul-Christian. 2017. "brms: An R package for Bayesian multilevel models using Stan." *Journal of Statistical Software* 80(1):1–28.
- Chen, Jiafeng and Jonathan Roth. 2022. "Log-like? Identified ATEs defined with zero-valued outcomes are (arbitrarily) scale-dependent."
- Chyzh, Olga V and Robert Urbatsch. 2021. "Bean Counters: The Effect of Soy Tariffs on Change in Republican Vote Share Between the 2016 and 2018 Elections." *The Journal of Politics* 83(1):415–419.
- Clark, William Roberts and Mark Hallerberg. 2000. "Mobile Capital, Domestic Institutions, and Electorally Induced Monetary and Fiscal Policy." *American Political Science Review* 94(2):323–346.
- Conconi, Paola, David R DeRemer, Georg Kirchsteiger, Lorenzo Trimarchi and Maurizio Zanardi. 2017. "Suspiciously timed trade disputes." *Journal of International Economics* 105:57–76.

- Coppedge, Michael, Angel Alvarez and Claudia Maldonado. 2008. "Two Persistent Dimensions of Democracy: Contestation and Inclusiveness." *The Journal of Politics* 70(3):632–647.
- Davis, Christina L. 2008. "Linkage Diplomacy: Economic and Security Bargaining in the Anglo-Japanese Alliance, 1902–23." *International Security* 33(3):143–179.
- Davis, Christina L, Andreas Fuchs and Kristina Johnson. 2019. "State Control and the Effects of Foreign Relations on Bilateral Trade." *Journal of Conflict Resolution* 63(2):405–438.
- De Mesquita, Bruce Bueno and Alastair Smith. 2009. "A Political Economy of Aid." *International Organization* 63(2):309–340.
- DeRouen Jr, Karl and Uk Heo. 2000. "Defense Contracting and Domestic Politics." *Political Research Quarterly* 53(4):753–769.
- Dubois, Eric. 2016. "Political business cycles 40 years after Nordhaus." *Public Choice* 166(1):235–259.
- Foerster, Stephen R and John J Schmitz. 1997. "The transmission of US election cycles to international stock returns." *Journal of International Business Studies* 28(1):1–13.
- Gibler, Douglas M and Scott Woldford. 2006. "Alliances, Then Democracy: An Examination of the Relationship Between Regime Type and Alliance Formation." *Journal of Conflict Resolution* 50(1):129–153.
- Ikenberry, G. John and Joseph Grieco. 2003. *State Power and World Markets: The International Political Economy*. New York: W. W. Norton.
- Ito, Takatoshi. 1991. "International impacts on domestic political economy: a case of Japanese general elections." *Journal of International Money and Finance* 10:S73–S89.
- Kayser, Mark Andreas. 2006. "Trade and the Timing of Elections." *British Journal of Political Science* 36(3):437–457.
- Kayser, Mark Andreas. 2009. "Partisan Waves: International Business Cycles and Electoral Choice." *American Journal of Political Science* 53(4):950–970.
- Keohane, Robert O. 1971. "The Big Influence of Small Allies." *Foreign Policy* p. 161.
- Kim, Sung Eun and Yotam Margalit. 2021. "Tariffs As Electoral Weapons: The Political Geography of the US–China Trade War." *International Organization* 75(1):1–38.
- Kriner, Douglas L and Andrew Reeves. 2012. "The Influence of Federal Spending on Presidential Elections." *American Political Science Review* 106(2):348–366.
- Kriner, Douglas L and Andrew Reeves. 2015. "Presidential Particularism and Divide-the-Dollar Politics." *American Political Science Review* 109(1):155–171.

- Kubinec, Robert. 2022. "Ordered Beta Regression: A Parsimonious, Well-Fitting Model for Continuous Data with Lower and Upper Bounds." *Political Analysis* pp. 1–18.
- Leeds, Brett, Jeffrey Ritter, Sara Mitchell and Andrew Long. 2002. "Alliance Treaty Obligations and Provisions, 1815–1944." *International Interactions* 28(3):237–260.
- Mayer, Kenneth R. 1995. "Electoral Cycles in Federal Government Prime Contract Awards: State-Level Evidence from the 1988 and 1992 Presidential Elections." *American Journal of Political Science* pp. 162–185.
- McManus, Roseanne W and Keren Yarhi-Milo. 2017. "The Logic of "Offstage" Signaling: Domestic Politics, Regime Type, and Major Power-Protégé Relations." *International Organization* 71(4):701–733.
- Mintz, Alex. 1988. "Electoral Cycles and Defense Spending: A Comparison of Israel and the United States." *Comparative Political Studies* 21(3):368–381.
- Morrow, James D. 1991. "Alliances and Asymmetry: An Alternative to the Capability Aggregation Model of Alliances." *American Journal of Political Science* 35(4):904–933.
- Mullahy, John and Edward C Norton. 2022. Why Transform Y? A Critical Assessment of Dependent-Variable Transformations in Regression Models for Skewed and Sometimes-Zero Outcomes. Technical report.
- Nordhaus, William D. 1975. "The Political Business Cycle." *The Review of Economic Studies* 42(2):169–190.
- Oatley, Thomas. 2015. *A Political Economy of American Hegemony*. New York: Cambridge University Press.
- Philips, Andrew Q. 2020. "Just in time: Political policy cycles of land reform." *Politics* 40(2):207–226.
- Poast, Paul. 2012. "Does Issue Linkage Work? Evidence from European Alliance Negotiations, 1860 to 1945." *International Organization* 66(1):277–310.
- Poast, Paul. 2013. "Can Issue Linkage Improve Treaty Credibility? Buffer State Alliances as a "Hard Case"." *Journal of Conflict Resolution* 57(5):739–764.
- Rogoff, Kenneth S. 1987. "Equilibrium political budget cycles.". NBER Working Paper No. 2428.
- Saunders, Elizabeth N. 2022. "Elites in the Making and Breaking of Foreign Policy." *Annual Review of Political Science* (25):219–240.
- SIPRI. 2021. *SIPRI Yearbook 2021: Armaments, Disarmament and International Security*. Oxford: Oxford University Press.

Sto. 2022. *SIPRI Arms Transfers Database*.

**URL:** <https://www.sipri.org/databases/armstransfers>

Thompson, William R and Gary Zuk. 1983. "American Elections and the International Electoral-Economic Cycle: A Test of the Tufte Hypothesis." *American Journal of Political Science* pp. 464–484.

Turner, Paul W, Christian S Schmid, Skyler J Cranmer and Göran Kauermann. 2019. "Network Interdependencies and the Evolution of the International Arms Trade." *Journal of Conflict Resolution* 63(7):1736–1764.

Tufte, Edward R. 1978. *Political Control of the Economy*. Princeton University Press.

Warren, T Camber. 2016. "Modeling the coevolution of international and domestic institutions: Alliances, democracy, and the complex path to peace." *Journal of Peace Research* 53(3):424–441.

Whitten, Guy D. and Laron K. Williams. 2011. "Buttery Guns and Welfare Hawks: The Politics of Defense Spending in Advanced Industrial Democracies." *American Journal of Political Science* 55(1):117–134.

Wolford, Scott and Moonhawk Kim. 2017. "Alliances and the High Politics of International Trade." *Political Science Research and Methods* 5(4):587–611.

Yarhi-Milo, Keren, Alexander Lanoszka and Zack Cooper. 2016. "To Arm or to Ally? The Patron's Dilemma and the Strategic Logic of Arms Transfers and Alliances." *International Security* 41(2):90–139.