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Essays on the Political Economy of International Trade and Coups

William Akoto

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by

William Akoto

Bachelor of Commerce
Nelson Mandela Metropolitan University 2005

Bachelor of Commerce
Nelson Mandela Metropolitan University 2006

Master of Commerce
Nelson Mandela Metropolitan University 2008

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Accepted by:

Timothy M. Peterson, Major Professor

Katherine Barbieri, Committee Member

Tobias Heinrich, Committee Member

Cameron G. Thies, Committee Member

Cheryl L. Addy, Vice Provost and Dean of the Graduate School

Dedication

This dissertation is dedicated to my wife Diana Kimono Akoto and my son Liam Akoto.

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While this dissertation represents a great deal of personal effort, it would not have been possible without the help, encouragement and support of many others. Any mistakes that remain are my own but much of what makes this dissertation better could not have come without the guidance and helpful comments of several others. First, I would like to thank Timothy Peterson, an excellent adviser and mentor in every way! Tim is extremely supportive, insightful and very quick with his feedback. His comments on the many drafts of this dissertation significantly improved the quality of the end product. I will be happy if I am half as good an adviser to my own grad students as he has been to me!

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of the way. One more year till she completes her own PhD. May God see her through just as He has done for me. Liam is only 3 but in his own way, he has been an incredible source of inspiration. His tiny little hugs warm my heart and remind me why I am on this journey. Liam, I hope my PhD (and your mum's) inspires you to always aim to perform at the highest levels, no matter where your path in life takes you.

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I save the biggest thanks for God Almighty. I am reminded of the verse that says "I can do all things through Christ who strengthens me" (Philippians 4:13). Indeed, nothing I have done would be possible without Him.

Abstract

In this dissertation, I shed light on the nexus between coups and trade. I address three key questions. First, I examine whether all coup attempts, regardless of outcome, have the same effect on international trade. I demonstrate that while failed coups and increased coup risk negatively impact bilateral trade, the effect of successful coups is mixed. Disaggregating trade along its intensive and extensive margins, I also show that coups and increased coup risk largely influence bilateral trade through their impact on the extensive margin of trade.

Second, I examine how the changing composition of international trade affects coup propensity. I show that increased intra-industry trade is associated with a reduction in the incidence of coups. I link this to reduced support for coups among consumers and firms and anti-coup action taken by governments as intra-industry trade increases. I also show that horizontal intra-industry trade has a bigger pacifying effect on coups compared to its vertical counterpart, due to the differing firm-level effects of these trades.

Third, I analyze the links between trade agreements and the survival of incumbents at risk of coups. I demonstrate that contrary to assertions in the existing literature, it is the impact of trade agreements that matter for the coup-proofing capability of such agreements. I also show that these effects are expressed most strongly for coups staged by regime outsiders.

The dissertation makes several contributions to the coup-trade literature. It is the first to demonstrate that successful and failed coups can have very different impacts on the trade of the coup state and that these effects can be countervailing along the

intensive and extensive margins of trade. This challenge existing assumptions in the literature that treat coup attempts homogeneously. It also demonstrates for the first time that increased risk of coups dampen trade along both the intensive and extensive margins of trade. This is important for domestic policy makers because it highlights the importance of managing firm-level perceptions of coup risk.

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Chapter 1

Introduction

Extensive competition between various domestic political agents can precipitate repeated cycles of political instability. Prior research shows that such instability is inimical to development (Acemoglu 2008; Fatas and Mihov 2013; Feng 1997). Development needs a stable political atmosphere where social harmony, good governance and rule of law thrive. An unstable political environment deters investment and slows the pace of economic development. Moreover, poor economic performance has important feedback effects on political stability as it may lead to government collapse and political unrest. Consequently, understanding the links between economic growth, development and political stability is critical.

The existing literature shows that trade is an important determinant of economic growth and development. Countries that are open to trade tend to grow at a faster rate, are more innovative, more productive, have higher income levels and provide more opportunities for their people (Liu and Ornelas 2014; Melitz and Trefler 2012; Peterson and Thies 2012). Trade also benefits domestic consumers, particularly low-income households, by offering access to more affordable goods and services. Hence, domestic conflict that reduces trade could have potentially important consequences not only for consumer welfare but also for economic growth and development.

While the existing literature has examined how various forms of domestic conflict (such as civil wars, terrorist attacks, insurgencies etc.) affect trade, we know relatively little about the effect of one important form of domestic conflict - coups. It is important to understand the relationship between coups and trade because prior

research suggests that coups can have significant effects on trade volume (Fosu 2002; Powell and Chacha 2016). In this dissertation, I aim to contribute to our understanding of the relationship between trade and coups. In a series of essays, I address three important aspects of the nexus between trade and coups.

In the first essay I take on the fundamental question of how coups affect international trade. This is particularly important given the recent resurgence of scholarship that aims to examine the links between coups and economic growth and development (e.g. Dube et al. 2011; Kim 2014; Powell and Chacha 2016). These studies build on prior work that examine how coups interact with trade dynamics to produce the levels of growth and development witnessed in coup-prone states. However, this first generation of studies do not differentiate between successful and failed coups, a major shortcoming since the former results in regime change while the latter does not.

Additionally, prior studies have been limited to analysis of how actual coup events affect trade. However, the economics literature presents strong evidence that at the firm level, international trade decisions do not just respond to current events but also to anticipated ones (e.g Gervais 2018; Gulen and Ion 2015; Handley and Limao 2015). This means that firms may not only be sensitive to current coup events but also to potential coups. This possible link between coup risk and trade is completely unexplored. I address these shortcomings by disaggregating coups into failed and successful ones and capture the effect of coup expectations with a new coup risk index. I also decompose aggregate trade along its intensive and extensive margins. I draw on the emerging heterogeneous firms trade literature to show that failed coups and increased coup risk both have significant negative effects on trade. However, the effects of successful coups are mixed, possibly depending on post-coup trade policies. I also demonstrate that successful and failed coups can have countervailing impacts on trade along the intensive and extensive margins. This challenges the implicit assumption of equivalency underlying studies that only analyze the aggregate effect

of coup attempts on trade.

The second essay examines the link between intra-industry trade and coup attempts. Classic trade typically involves the exchange of goods and services across industries. For instance, the US and Europe import agricultural commodities from developing countries and export manufactured industrial goods in return. However, since the end of World War II, an increasing proportion of international trade has been *within*, rather than between industries [1]. Intra-industry trade (IIT) involves the exchange of differentiated, often branded goods (such as domestically produced automobiles) for foreign made ones. This intra-industry trade has expanded rapidly in the last few decades, accounting for between 55% and 75% of international trade (Alt et al. 1996; Milner 1999). In spite of this marked shift, literature on the political consequences of this change in trade composition is only beginning to emerge. One important stream of this emerging literature analyzes the effects of IIT on the political behavior of states in the international arena (e.g. Kim and Wong 2015; Madeira 2016; Osgood 2016; Peterson and Thies 2012; Thies and Peterson 2015). This literature shows that IIT lowers resistance to liberalization and increases inter-state symmetry of trade gains and opportunity costs. This contributes to cooperation between states and fewer interstate conflicts. An unexplored dimension of this is whether the pacifying effects of intra-industry trade extend to the domestic political environment. To fill this gap, I analyze how intra-industry trade and its horizontal and vertical components affect coups, an important form of domestic conflict.

This essay makes the case that increased intra-industry trade is associated with reduced incidence of coups. I argue that intra-industry trade raises the opportunity cost of coups for consumers, domestic firms and the government, incentivizing them to limit support for coups or to pursue actions that keep coup propensity low. I test these propositions for a global sample of countries and find robust empirical support.

[1] Albeit often among countries that have similar factor endowments.

The results also show that increases in horizontal-IIT have a bigger pacifying effect on coups than its vertical counterpart, due to the differing firm-level effects of these trades.

The final essay analyses how trade agreements affect coup propensity. The post cold war era has seen a spike in the number of countries entering into trade agreements. Trade agreements have therefore become one of the most important economic policy instruments for many government around the world. Recent scholarship on trade agreements highlights the interesting observation that countries enter trade agreements with more frequency than their economic benefits alone would warrant. Some scholars explain this higher-than-expected participation in trade agreements as a function of the potential effects that trade agreements have on prolonging incumbent survival in office, particularly incumbents at risk of overthrow through coups. However, precisely how trade agreements aid the survival of at risk incumbents and the exact mechanisms at play are still nebulous. Getting clarity on this issue is important because trade agreements are not primarily designed to lengthen incumbent survival so if it has this effect in practice, the consequences are important. For one, it could dampen the prospect of democratization if repressive autocratic regimes can prolong their stay in office by reaping the benefits of multiple trade agreements. A related unresolved question is this - if trade agreements do reduce coup risk, do they all have this effect or do their coup-proofing benefits vary depending on the specific actors involved in the coup? Moreover, do the coup-proofing effects of trade agreements extend beyond differences in their design? In the final essay, I attempt to provide answers to these questions.

I make the case that beyond merely entering into PTAs or even differences in their design, it is the impact of these agreements on trade that determine their coup-proofing benefits. I also contend that the coup-proofing capabilities of PTAs only apply to coups staged by regime outsiders. Examining reciprocal PTAs involving 152

countries concluded between 1962 and 2014 along with commodity level trade data, I find confirmatory results that are robust to a variety of controls, specifications and alternative explanatory mechanisms. The essays are presented in the chapters that follow.

Chapter 2

International Trade In The Shadow of Coups

2.1 Introduction

Recent years have witnessed a resurgence in scholarship examining the links between coups and economic growth and development (e.g. Dube et al. 2011; Kim 2014; Powell and Chacha 2016). Many of these studies highlight how coups are often disruptive to productive economic activity and so are inimical to economic growth. These recent studies extend prior work that examine the nexus between coups and one critical ingredient of economic growth - international trade (e.g. Fosu 2002, 2003; O'Kane 1993). That branch of the literature has shed valuable light on how coups interact with trade dynamics to produce the levels of growth and development witnessed in coup-prone states. For instance, O'Kane (1993) argues that most coups are a consequence of the government's lack of political control over the fallout resulting from domestic uncertainties created by shocks in world trade markets. Specialization in and dependence on primary goods for exports leaves governments with very little fiscal room maneuver in times of negative price shocks. In the face of high poverty levels, even the most responsible governments are open to accusations of incompetence and corruption, precipitating coups.

One shortcoming of this coup-trade literature (and much of the broader literature on coups and economic growth) is that it is primarily concerned with the effect of coup attempts as a whole. In effect, these studies treat successful and failed coups alike. Unfortunately this overlooks one very important distinction between successful

and failed coups - the former results in regime change and the later does not. This distinction has important implications for the potential effects coups have on trade. For one, the historical coup incidence record is replete with accounts of new coup leaders reneging on debt servicing obligations, instituting income and export subsidies and decreeing currency devaluations or abrogating previous ones. Such sweeping policy reforms in the aftermath of successful coups may have a significant impact on domestic demand conditions and the profitability of domestic and foreign firms that engage in trade. On the other hand, failed coups are often not followed by sweeping economic reforms but harsh retaliatory measures by the surviving regime as it goes after the perpetrators of the abortive coup. Consequently, successful and failed coups likely have very different consequences for the trade of the coup state, consequences we miss when we fail to make the distinction between the two.

Related to this, previous studies have been exclusively confined to analysis of how *actual* coup events affect trade. This limitation is unfortunate, particularly in light of the myriad of studies that show that the firms base trade and investment decisions not only on current events but also on *anticipated* future events (e.g Gervais 2018; Gulen and Ion 2015; Handley and Limao 2015). This means that trade may not only be responsive to coup events that have already happened but also to the *risk* of future coups. This potential nexus between coup risk and trade is completely unexplored.

Moreover, on the trade side of the equation, analysis has focused exclusively on aggregate trade. While this is useful, it ignores the fact that changes in trade can be driven by changes in either trade per product (the intensive margin) or in the range of goods traded (the extensive margin) or both. An analysis of the effect that coups have on trade along these dimensions is important because an increase in the range of traded goods is fundamentally important to the economy as an engine for growth. Additionally, growth (or at least a maintenance) of trade per product is important for sustained economic development.

I aim to address these shortcomings in this paper. I disaggregate coups into failed and successful ones and capture the effect of coup expectations with a new coup risk index. I focus on the effect of coups and coup risk on foreign exports to the coup state and decompose these exports into the range of products exported and the amount exported per product. My theoretical framework draws on the emerging heterogeneous firms trade literature to examine how coups and coup risk affect the variable and fixed costs of market entry as well as domestic demand conditions. For the empirical analysis, I use structural gravity models in a directed dyad framework with a sample of 162 countries over the period 1962 - 2015.

The results show that failed coups and increased coup risk have significant negative effects on the intensive and extensive margins of trade and on overall bilateral exports. However, the effects of successful coups on trade are mixed, although they generally lean negative. These results demonstrate for the first time that successful and failed coups can have very different impacts on the trade of the coup state. This challenges the implicit assumption of equivalency underlying studies that only analyze the aggregate effect of coup attempts. The also demonstrate that increased risk of coups dampens trade along both dimensions. Policy-wise, this is particularly revealing because it suggests that the perception that certain countries are at high risk for coups may undermine their efforts to develop through trade.

In the sections that follow, I discuss how coups and coup risk potentially affect bilateral trade and its intensive and extensive margins. I then describe the data and analytical approach. Results and conclusions follow that.

2.2 Coups And International Trade

A natural theoretical setting for linking the intensive and extensive margins of trade to coups is the emerging heterogeneous firms trade theory literature. In contrast to traditional trade models, these emphasize the importance of firm-level productiv-

ity differences in trade patterns (see e.g. Bernard et al. 2007; Manova 2013; Melitz and Trefler 2012). The incorporation of firm-level productivity differences into the traditional trade models yield a decomposition of trade expansion into two distinct dimensions - an increase in exports by firms that already export to the destination market (the firm-level intensive margin) and the number of exporters selling in the destination market (the firm-level extensive margin). When firms produce differentiated goods, these firm-level margins translate into product-level margins, (the focus of this study). This paper builds on recent studies that attempt to analyze the effect of trade liberalization, in terms of reductions in the fixed and variable costs of trade, on these product-level margins. One seminal contribution to this stream of the literature is Melitz (2003), who develops a dynamic industry model with heterogeneous firms to analyze the intra-industry effects of international trade. His model shows that exposure to trade induces only the most productive firms to enter the export market while simultaneously forcing the least productive firms to exit.

Chaney (2008) extends this model, allowing for asymmetric trade barriers between trade partners. Unlike earlier representative firm models (see e.g. Krugman 1979), Chaney (2008) accounts for firm-level productivity differences as well as the costs of entering export markets. The intuition behind the model is that because firms differ in terms of their productivity and also due to the existence of fixed and variable costs in exporting, only the most productive firms will find it profitable to export. Critically, the profitability of exports differs by destination. This means that firms generally prefer to export to countries that have higher demand and lower fixed and variable costs as these present the biggest opportunities to maximize profits. Thus for each export destination d, there is a productivity threshold that yields zero profits from exports for firms in origin country o. The only firms in o that will have positive profits from exporting to d will be firms that have productivity levels that exceed this threshold. Hence, only a subset of firms in o will be exporters, with this subset

varying with the characteristics of the specific destination market.

At the firm-level, a reduction in variable trade costs to a particular destination increases the number of exports for each existing exporter and also increases the number of exporters since the productivity threshold for profitability drops. On the other hand, a reduction in fixed costs have little effect on existing exporters (since they have already paid the fixed costs to be in the market) but induces new firms to enter the market by lowering the productivity threshold. At the product-level, this suggests that a reduction in variable cost will increase both exports per product as well as the range of products exported whereas a reduction in fixed costs will increase the range of products exported to o.

Against this background, we can view coups in the destination country as affecting the fixed and variable costs associated with doing business there. Below, I detail how failed and successful coups potentially affect these trade-related costs.

2.2.1 Failed Coups

Failed coups in the destination country directly affects trade costs (and by extension the profits) of foreign exporter firms. Given that fixed-costs represent one-time sunk costs associated with market entry, failed coups have very little direct effect on such costs. The effects of failed coups on trade are more likely come through its effect on variable (on-going) costs. In the aftermath of a failed coups, surviving incumbents may crackdown on coup conspirators and their supporters. Cases of arbitrary arrests, torture and summary executions are not uncommon. Surviving incumbents have also been known to use the excuse of a failed coup to round up political opponents and dissidents. The brutal crackdown on opposition supporters by the government of Recep Tayyip Erdogan in the aftermath of the failed 2016 coup in Turkey serve as a useful illustration. Failed coups could also degenerate into large scale violent conflicts that can destroy trade facilitating infrastructure (ports, warehouses, roads,

bridges, communication networks etc.). Violent failed coups could also destroy social and private capital and result in curfews that restrict movements to certain hours or create security concerns that make it hard for workers to report to work, possibly shrinking incomes and associated consumer demand.

This has a direct effect on the variable costs of doing business in the coup country for foreign exporters. For one, curfews and the heightened security environment in the aftermath of failed coups could logistically complicate the movement of goods to shops and markets or prolong the amount of time goods spend in ports and warehouses. This constitutes an additional cost to firms for example through increased transportation expenses or the depreciation of the goods' value while delayed in ports. Firms may also have to hire additional security for warehouses and shops if failed coups degenerate into widespread violence, further increasing variable costs. Even if failed coups proceed without incidence, variable costs may still increase. Surviving incumbents could divert resources away from productive activities such as the maintenance of power, transportation and communications infrastructure towards coup-proofing activities such as procurement of weapons, paying soldiers and allied rebel groups. In the long-run, this means firms will have to spend more to maintain transportation trucks or acquire generators to make up for unreliable power from national grids.

Faced with these additional costs, existing exporters may be forced to adjust how much of each product they export to the destination country (the intensive margin). These additional costs also determine whether it is still profitable for firms to keep exporting to the destination country. Firms on the margin may be forced out of the market by these costs, reducing the range of products exported to the coup state (the extensive margin). We therefore expect failed coups to have a negative effect on both the intensive and extensive margins as well as the overall level of foreign exports to the destination country. We can restate this as follows:

H1: *Failed coups have a negative effect on total exports and a negative effect on both*

the intensive and extensive margins.

2.2.2 Successful Coups

Successful coups have the potential to directly affect both the variable and fixed costs associated with trade, although their overall effect on trade is harder to predict *ex ante*. On one hand, the variable costs associated with trade may increase in the aftermath of successful coups if the new leaders pursue protectionist trade policies. For instance, the new leaders may seek to build support by increasing tariffs to protect domestic industries and raise revenue. These tariff increases impose additional costs on existing foreign exporters who now have to either absorb the costs or pass them on to consumers and potentially loose market share. Profits are hurt in both cases. The new leaders may also pursue a policy of currency devaluations which make foreign goods more expensive for domestic consumers, further reducing demand.

Successful coups may also threaten the stability of political institutions essential for regulating markets and enforcing contracts. Foreign firms often rely on the threat of litigation to protect property rights and ensure the fulfillment of contracts and other obligations (Levchenko 2012). These institutions could be rendered ineffective as guarantors of trade contracts in the aftermath of successful coups. As the institutional mechanisms for contract enforcement and compensation become unreliable, foreign firms face the threat of receiving no compensation for contract breaches by domestic trade partners. This increases the cost for new and existing foreign firms of doing business in the coup country as they have to take extra precautions to guard against this possibility.

Furthermore, the efforts of coup makers to consolidate power and struggles by ousted elites to regain power could create an unstable political and economic environment that interrupts business operations. Domestic subsidiaries of foreign firms associated with the previous leaders could also be targeted for nationalization by the

new regime. The net effect of these disturbances is to increases both the fixed and variable costs of doing business in the coup state. Faced with these cost increases, existing firms are likely to cut back on export volumes, hurting the intensive margin of trade. Decreased demand may also make it unprofitable for these firms to keep exporting to the destination country and for new firms to enter the market. This reduces the rage of products exported to the coup state, depressing the extensive margin.

On the other hand, successful coups may hold great potential for trade. For one, coups could remove long-term autocratic governments and usher in a period of democratic reforms and transitions which boosts economic growth and incomes (Derpanopoulos et al. 2016). Because coups are often launched against unpopular governments, they could help ease political tensions and lower the incidence of repression and human rights abuses. This improved political and security environment could make it easier for domestic workers to get and keep jobs due to better freedoms of movement, boosting incomes and demand.

In addition, the new coup leaders could launch a series of economic reforms that increase the profitability of exporting there. For instance in Brazil, the new military government moved swiftly to institute policies aimed at boosting exports after the 1964 coup that brought an end to the government of Joao Goulart (Mello 2010). These policies are credited with kick-starting the stalled Brazilian economy, establishing the country as a regional powerhouse.

Coups could also remove protectionist governments and dismantle inimical policies that previously increased the cost of exporting there. For instance, before the 1973 Augusto Pinochet coup, Chile was a closed economy with very high trade tariffs and other barriers to capital movements (Aroca and Hewings 2006). Immediately after the coup, Pinochet moved to radically liberalize the economy through aggressive tariff reductions, price and interest rate cuts (Lederman 2005). The change in government

could also ease political tensions and improve the security situation that lowers the cost of freight, insurance and other costs associated with exporting to the country.

Foreign firms could also benefit significantly from coups if their home government was complicit in the coup. If the coup was engineered or backed by the home state government, it is conceivable that the new rulers, as a reward for the assistance, may offer preferential access to its markets for the country's firms. It could also reduce tariffs for their goods. Depending on the agreement reached with the coup leaders prior to them usurping power, the trade concessions towards the backing state could be substantial, encompassing not just trade but other flows such as government contracts and procurement. Even without the prior backing of any foreign state, coup leaders could unilaterally liberalize trade, reducing tariff and non-tariff barriers to curry favor with major trading partners and the broader international community. This is particularly likely if the coup leaders lack a solid domestic base of support.

Thus, successful coups potentially have significant effects on both the variable and fixed costs of doing business in the coup state. Cost reductions increase exports along both the intensive and extensive margins while cost increases will have the opposite effect. However, whether costs increase or decrease depends on the specific actions and policies adopted by new coup leaders in the aftermath of each successful coup. This in itself depends on the specific circumstances surrounding each coup. This makes it difficult to predict *ex ante* the exact effect that successful coups will have on trade.

We can formalize this as:

H2: *Successful coups could have a positive or negative effect on total exports as well as on both the intensive and extensive margins.*

2.3 Coup Risk And Trade

While it is important to examine the impact of *actual* coup attempts on trade, it is important to recognize that firms do not only respond to coup events but also to *expectations* of potential coups. Several studies show that firms base key decisions on how relevant factors are expected to affect revenues. For instance, Gervais (2018) shows that firms that expect to face difficulty sourcing critical production inputs tend to contract with multiple suppliers in order to limit the potential impact of these anticipated disruptions on firm profits. Similarly, Baroudi (2017) shows that faced with the increased likelihood of an unfavorable change to the political environment, firms are likely to purchase political risk insurance to limit variability to profits.

Expected coups likely affect trade through their effect on generating policy uncertainty. As highlighted above, successful coups could have either a positive or negative effect on exports depending on the post-coup policies of the new leaders. Failed coups could spark a crackdown that impedes economic activity.[1] Because it is difficult to predict whether coup attempts will succeed or fail (and if successful what policies are likely to follow), their possibility creates enormous uncertainty for existing firms that do business in the coup state as well as for potential firms contemplating entering that market. How these firms deal with this uncertainty is therefore critical to determining the effect that coup expectations have on exports and its constituent margins.

Greenland et al. (ming) provide a useful theoretical framework for analyzing how uncertainty affects the business decisions of firms. They build on prior models that show that when market entry costs are sunk or at least partially irreversible, uncertainty about future policies induce prospective firms to delay entry until the uncertainty resolves (see e.g. Bernanke 1983; Handley 2014; Handley and Limao 2015). This suggests that new firms prefer to delay incurring the sunk costs associated with

[1] It is possible that failed coups may also spur economic reforms that boost trade (although this is very rare)

exporting to an uncertain policy environment. Greenland et al. (ming) adapt these general equilibrium frameworks to account for the effect of uncertainty on the margins of trade. They show that as policy uncertainty causes firms to delay entry into new markets, the range of potential products exported to the new market decreases, negatively impacting the extensive margin.

They also show that the intensive margin is primarily influenced by changes in future demand conditions. This is because changes in demand directly affect firms' choices in relation to product prices and quantities exported. Expectations of decreased future demand induce existing firms to reduce prices or cut exported quantities. Decreased demand also means that exporting to the coup country may no longer be profitable for some firms, who may drop out of the market. Expected future decrease in demand therefore has a negative effect on the intensive margin of trade.

We can apply these insights to determine the effect of potential coups on trade. The possibility of a coup introduces uncertainty because a coup could for instance usher in leaders who may radically change trade policy in unanticipated ways. This uncertainty causes a decrease in the number of potential foreign firms willing to do business in the coup country, decreasing the range of products exported and consequently depressing trade along the extensive margin. Coups also hold the potential of dampening future consumer demand through the mechanisms outlined earlier. This induces existing foreign exporters to take measures aimed at limiting potential variation in profits, including limiting current exports to the coup country. This reduces exports per product and dampens trade along the intensive margin. Overall, an increase in the risk of future coups should have a negative effect on the intensive and extensive margins of trade as well as the overall level of trade.

We can formalize this as:

H3:*Increased coup risk has a negative effect on total exports and a negative effect on*

both the intensive and extensive margins.

2.4 Data and Analysis

I aim to test hypotheses that while the effect of successful coups are ambiguous, failed coups and increased coup risk have negative effects on bilateral exports along both the intensive and extensive margins. Towards this end, I draw on a global sample of 162 countries over the period 1962-2015 in a directed dyad empirical framework.

2.4.1 Coups

To capture actual coups, I use two dichotomous variables. The first - *Coup Failure* - is coded 1 for years in which there were failed coup attempts (including multiple failures) and 0 otherwise. The second variable - *Coup Success* - is coded 1 if an attempted coup is successful and 0 otherwise. Powell and Thyne (2011) from whom I obtain coup data define a coup as an "illegal and overt attempt by the military or other elites within the state apparatus to unseat the siting executive". In this vein, coups "succeed" if the putschists are able to hold on to power for at least seven consecutive days and fail otherwise.

2.4.2 Measuring Coup Risk

Coup risk is commonly conceptualized as capturing the opportunity for launching coups. This flows from the distinction between the motives for coups and the opportunity for staging coups (e.g. Finer 1988; Hibbs 1973; Huntington 2006; Luttwak 1968). For instance, Finer (1988) links coup occurrence to factors that create the necessary opportunities for military intervention such as civilian dependence on the armed forces, crisis in the domestic polity e.g. power vacuums and the popularity of the military. Similarly, Zimmermann (2013) links coups to jostling between "push" and "pull" factors. Push factors act on the motives that coup entrepreneurs have to

stage coups whilst pull factors create the opportunity for intervention. Also, Casper and Tyson (2014) argue that elites with pre-existing motives to stage coups use the opportunity created by citizen protests to coordinate for coups.

It is this distinction between motives and opportunities for coups that Belkin and Schofer (2003) take issue with. They point out that coup risk and the opportunity for launching a coup are not necessarily equivalent. They do away with the motives vs. opportunities framework, choosing instead to draw on the distinction between "structural" and proximate "triggers" of coups. They conceptualize coup risk as reflecting the background latent factors that make coups possible rather than the immediate proximate causes that trigger any one particular coup. They argue that coup risk is the result of deep structural societal, governmental and cultural attributes e.g. regime legitimacy and strength of civil society. This is separate from short-term fleeting crises that tend to trigger specific coups e.g. individual officers grievances, citizen protests and government crisis. Thus, in their conceptualization, it is the combined effect of structural risk and short-term triggers that lead to coups. In the absence of structural factors, the triggers alone cannot lead to coups. The structural factors determine the underlying coup risk whilst the triggers determine the timing of the coup.

Belkin and Schofer (2003) suggest three dimensions along which to measure coup risk - a) the strength of civil society b) regime legitimacy and c) the impact of past coups. Following their conceptualization of coup risk, I capture the strength of civil society using the Core Civil Society (CCS) Index from the Varieties of Democracy dataset (Bernhard et al. 2015). The CCS index captures the robustness of civil society groups i.e. the autonomy of civil society groups from state control and the ability of citizens to freely pursue their collective interests. The index is based on a battery of responses to questions about various aspects of civil society organizations by country experts. These questions examine the ability of civil society groups to

organize free of state constraints and how engaged the general citizenry is in civil society organizations. The index takes into account the existence of laws that regulate the entry and exist of civil society organizations into the public space as well as whether there is direct state repression of civil society organizations and political activists. The index also includes indicators for civil society consultation, organizational characteristics and whether particular groups are subject to discrimination in civil society. The index ranges between 0 and 1, with higher scores indicating a more robust civil society.

Following Belkin and Schofer (2003), I capture regime legitimacy using measures of competitiveness and the degree of regulation of the political system taken from the Polity IV project (Marshall 2017). Competitiveness captures the extent to which "alternatives preferences for policy and leadership can be pursued in the political arena" and is a five-category index that ranges from "repressed" in which no significant oppositional activity is present to "competitive", where relatively stable and enduring secular political groups regularly compete for political influence. The regulation of participation index captures the extent to which there are binding rules on when, where and how political preferences are expressed. This is a five-category index that ranges from "unregulated" where political participation is fluid with no enduring national political organizations and no systemic regime controls on political activity to "regulated" where political groups regularly compete for political influence and position with little use of coercion.

To capture the effect of past coups, I rely on data from Powell and Thyne (2011). For each country-year, I include the time elapsed since the last coup attempt. This indicator of the duration between attempts is informationally rich as it incorporates information on both the incidence and frequency of coups.

I employ a Bayesian modeling approach and Markov Chain Monte Carlo (MCMC) models to estimate the index. I use Bayesian factor analysis which allow the data to

determine what weights are assigned to each component of the index as part of the estimation process. In essence, this approach lets the "data speak" in terms of which of the individual components have the biggest effect on latent coup risk. This frees us from having to arbitrarily assign weights since the existing literature provides very little guidance in terms of the relative technical importance of each component variable. The estimation model also provides greater information about the uncertainty around the resulting index value for each country-year. This information is important because it provides an indication of the precision of the estimated index and allows other researchers who may use the index to take the uncertainty into account in their own work.

To estimate the latent coup risk from the observed input variables, we assume that χ denotes an N $\times$ J matrix of observed values along J dimensions by N countries. We also assume that the elements of χ are derived from an N $\times$ J matrix of χ^* latent variables along with a collection of cut points that distinguish between the variables. If we set J = 1,2,3,....,J index of observed variables and i =1,2,3,....,N index of observations, the association between the observed component variables and the latent values χ^* can be modeled using a Bayesian factor analysis model:

$$\chi_i^* = \Lambda\Phi_i + \varepsilon_i, i = 1, 2, 3, ..., N \tag{2.1}$$

Where χ_i^* is the J vector of latent coup risk specific to observation i, Λ is a J $\times$ K matrix of factor loadings (discrimination scores), Φ_i is a K vector of factor scores unique to each observation i and $\varepsilon_i \sim N(0, \Psi)$ is a J vector of disturbances.[2] For the estimation, the continuous variables are standardized to have a mean of 0 and standard deviation of 1. To help identify the model, I constrain the component variables to have a negative effect along with relatively uninformative priors for the error variances. This corresponds with our theoretical expectations that increases in

[2]See Quinn (2004) for a useful review of the models employed here.

each of the component variables is negatively associated with latent coup risk.

The estimated coup risk index captures the likelihood of a coup attempt. To get a sense of the index, Figure 1 is a plot of the top 20 countries in terms of coup risk for 2015. The panel shows the point estimates along with the 95% confidence intervals. The plot shows that in 2015, Afghanistan, Somalia and Papua New Guinea were the top three countries in terms of latent coup risk i.e. these countries had the most favorable structural conditions for coup attempts during the year.

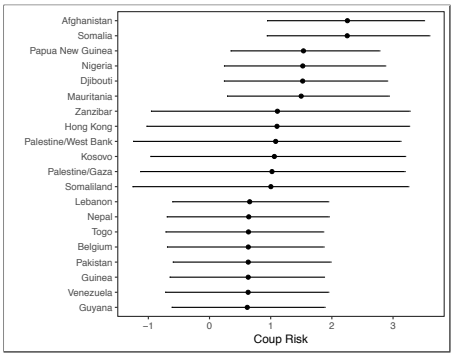

Figure 2.1: Estimated Coup Risk Scores

2.4.3 Decomposing Trade Flows

Our theoretical framework is micro-founded on decisions made by firms concerning the range and quantity of export products. To capture these product-level dynamics, I employ relatively fine grained trade data disaggregated to the commodity level using the Standard International Trade Classification level 5 (SITC-5). Trade data comes from UN COMTRADE (2018). For any origin-destination pair, I decompose bilateral trade flows into the range of products exported (the extensive margin) and the amount exported per product (the intensive margin). I follow Dutt et al. (2013) and estimate the extensive margin as a count of the number N_{od} of products exported from country o to country d and the intensive margin as the average value of exports

per product traded.[3] That is:

$$\bar{x}_{od} = \frac{X_{od}}{N_{od}} \tag{2.2}$$

The overall volume of bilateral exports is thus given by the product of these margins:

$$X_{od} = N_{od} \times \bar{x}_{od} \tag{2.3}$$

We estimate separate gravity equations for each of the these margins along with total exports. Gravity models are traditionally implemented by taking the natural logs of the dependent variable and so the sum of the logged margins should equal the log of the aggregate bilateral exports. In the same vein, the sum of the estimated coefficients for any independent variable for the two margins should equal the coefficient of that variable in the total exports model.[4]

2.4.4 Analytical Approach

I rely on a structural gravity model specification (Head and Mayer 2014). This takes the form:

$$X_{odt} = \frac{Y_{ot}}{\Omega_{ot}} \times \frac{X_{dt}}{\Phi_{dt}} \times \phi_{odt} \tag{2.4}$$

In the above expression, the value of exports from o to d at time t is represented by X_{odt}, Y_{ot} and X_{dt} are the value of the origin country's total production and the destination country's total consumption respectively. If trade is balanced, the level of consumption is the same as the level of production in each country.[5] The mutual resistance terms in the equation are Ω_{ot} and Φ_{dt} and represent a weighted sum of

[3] An alternative operationalization is to use weighted scores for the extensive and intensive margins as in Feenstra and Kee (2008) and Greenland et al. (ming). The difference between that operationalization and the one used here is that the traded products are assigned time-invariant weights for each destination country d proportional to the total value of exports from all d's trading partners. Theoretically, this operationalization and the one used here should produce the same results (Dutt et al. 2013).

[4] See Appendix A of Dutt et al. (2013) for a derivation of the extensive and intensive margins as used here.

[5] That is, $X_{dt} = Y_{dt} \times \phi_{odt}$ represents trade barriers between the two countries

trade costs that separate each country from all its trade partners. In other words, Φ_{dt} represents trade costs faced by the destination country when importing from other countries while Ω_{ot} represents the trade costs incurred by the exporting country in selling to importers (Feenstra and Kee 2008). We can transform the above structural equation into a linear version as:

$$\begin{aligned} ln(X_{odt}) = \beta_0 + \beta_1 CoupRisk_{t-1} + \beta_2 CoupSuccess_{t-1} + \beta_3 CoupFailure_{t-1} + \\ \beta_4 ln(GDP_{ot}) + \beta_5 ln(GDP_{dt}) + \beta_6 EIA_{odt} + \beta_7 ln(TIC_{od}) + \beta_8 MR_{ot} + \\ \beta_9 MR_{dt} + \zeta_{od} + \eta_t + ln(\epsilon_{odt}) \end{aligned} \tag{2.5}$$

$CoupRisk_{t-1}$ is the level of coup risk in the destination market d lagged by a year. $CoupSuccess_{t-1}$ and $CoupFailure_{t-1}$ are dichotomous variables coded 1 for successful and failed coups in the destination country in the previous year respectively.

I include a battery of standard gravity model covariates taken from the CEPII dataset (Mayer and Zignago 2011).[6] GDP captures a country's level of production in year t while EIA_{odt} captures time-varying trade costs and is a vector of two dichotomous variables each coded 1 for years in which country o and d are a) part of a regional trade agreement and b) are members of the World Trade Organization. TIC_{od} captures time-invariant trade costs and is a vector of characteristics specific to each dyad pair. This vector includes a) geographic distance between the capitals (or most populous cities) of the two countries b) a common border indicator c) a common official language indicator (by share of the population) d) dummy for colonial ties between the two countries and f) whether the destination country is landlocked.

I also control for multilateral resistance to trade between the dyad pair. Multilateral resistance reflects the fact that trade between any origin-destination pair is not solely a bilateral phenomena. It is also influenced by the multilateral setting within which trade takes place. The multilateral resistance terms capture both the openness

[6]Summary descriptive statistics are in Appendix Table A.1

of the importing country to exports from all other countries and the openness of the world to the exporter's goods. Omitting these multilateral resistance terms could potentially bias estimates of trade costs towards zero (Anderson and Van Wincoop 2004). I follow Yotov et al. (2016) and estimate multilateral resistance as the "remoteness index" of the importer and exporter. Thus, multilateral resistance terms for country o and country d are estimated as:

$$MR_{ot} = \sum_{d} Dist_{od} \frac{I_{dt}}{Y_t} \tag{2.6}$$

and

$$MR_{dt} = \sum_{d} Dist_{od} \frac{E_{ot}}{Y_t} \tag{2.7}$$

Where $Dist_{od}$, I_{dt}, E_{ot} and Y_t represent bilateral distance, importer trade expenditure, exporter trade output and world trade respectively. I also include dyad fixed effects, ζ_{od}, in all estimated models. As these fixed effects capture observed (and unobserved) time-invariant trade mediators, all dyad time-invariant variables drop out of the models due to potential collinearity. That is, the TIC_{od} term (distance, contiguity, common language, colonial ties etc.) drops out of the estimated models. I also include year fixed effects, η_t, to account for the potentially confounding effect of changing global trends in international trade over time. To minimize the likelihood of biased and inconsistent estimates due to heteroskedasticity and possible serial correlation in the error term, robust standard errors clustered at the dyad level are estimated for all models. In addition, for the main models, I follow Silva and Tenreyro (2006) and estimate Poisson Pseudo-Maximum-Likelihood (PPML) models as an additional robustness check.

2.5 Results

We begin by estimating a basic gravity model with standard covariates for gravity models along with indicators for multilateral resistance (but without controls for

dyad and year fixed effects). Due to space constraints, we relegate this standard model to the appendix (Table A.2). We estimate one model for each of our three dependent variables (total exports, the intensive and extensive margins) across our three variables of interest (coup success, coup failure and coup risk). All standard covariates are significant at conventional levels and have the expected signs. Focusing on Models 1 and 4, the estimate of the effect of distance is statistically significant at all conventional level and is exactly equal to the benchmark estimate of -1.00 that Head and Mayer (2014) document. This confirms that distance is indeed a significant deterrent to global bilateral trade. Being members of the WTO, being part of a free trade agreement, sharing a common border, language, currency and having a colonial relationship all significantly increase bilateral trade. As expected, being a landlocked country has the effect of decreasing trade with other states. We would expect the coefficients on the multilateral resistance terms to be positive (indicating remote countries trade more with each other) but are negative, possibly because of unobserved time-invariant dyad effects. However, with an adjusted $R^2 = 0.63$, this basic specification delivers the standard strong fit that is commonly found in many empirical gravity models in the literature (Yotov et al. 2016). Overall, the gravity estimates obtained here closely match those obtained in many other previous studies and therefore establish the representativeness of our sample countries.

We now move on to our main specification which includes controls for dyad and year fixed effects. As previously highlighted, the inclusion of dyad fixed effects implicitly accounts for all observed and unobserved time-invariant dyad characteristics (distance, contiguity, colonial relations etc.) and so those drop out of the model while the year fixed effects help account for changing global trade trends.

The results are in Table 2.1. Successful coups significantly increase exports along the intensive margin (model 2) while decreasing it along the extensive margin (model 3). Policy changes after successful coups may force some existing firms out of the

market, decreasing trade along the extensive margin. Remaining producers may then increase their exports to the coup state in a bid to capture the market left behind by the exited firms, potentially increasing trade along the intensive margin. These countervailing effects potentially explain why the overall effect of successful coups on exports is not statistically significant (model 1). Comparatively, failed coups are more damaging to trade, decreasing both the intensive and extensive margins as well as overall exports (models 1-3). The crackdown on political opponents, army purges and arbitrary arrests that tend to follow failed coup attempts may increase costs, forcing exporters to cut back on products and quantities exported.

Increased coup risk has a strong negative effect on foreign exports to the coup state (model 4). It significantly decreases trade along the extensive margin (model 6), possibly as a result of attempts by existing firms to limit their exposure to the coup state in the event the coup materializes. Increased coup risk also decreases trade along the intensive margin (model 5), although this effect does not rise to conventional levels of statistical significance.

All other control covariates are statistically significant and in line with theoretical expectations. Particularly, after controlling for dyad and year fixed effects, the multilateral resistance terms assume the expected positive coefficients for total trade (models 1 and 4). In addition, the adjusted R^2 for all estimated models are higher than those for the basic specification, indicating the superiority of the current specification.

For robustness, I re-estimate all the models using Poisson-Pseudo Maximum Likelihood (PPML). The PPML model allows us to estimate our gravity model in its native multiplicative format, without having to resort to a log-linearized specification. This is particularly useful in countering possible heteroskedasticity in the log-linearized model (Silva and Tenreyro 2006). However, the dependent variables are different in the sense that while the traditional gravity specification estimates the log of trade

Table 2.1: Structural Gravity Models

	ln(Exports) Model 1	ln(Int. Margin) Model 2	ln(Ext. Margin) Model 3	ln(Exports) Model 4	ln(Int. Margin) Model 5	ln(Ext. Margin) Model 6
Coup Success$_{t-1}$	0.01	0.04*	−0.02*			
	(−0.04, 0.07)	(−0.005, 0.08)	(−0.05, 0.002)			
Coup Failure$_{t-1}$	−0.09***	−0.05**	−0.04***			
	(−0.14, −0.03)	(−0.10, −0.004)	(−0.06, −0.01)			
Coup Risk$_{t-1}$				−0.09***	−0.01	−0.07***
				(−0.13, −0.04)	(−0.05, 0.02)	(−0.10, −0.05)
ln(GDP)$_o$	1.57***	0.51***	1.06***	1.57***	0.51***	1.06***
	(1.47, 1.66)	(0.44, 0.58)	(1.01, 1.11)	(1.47, 1.66)	(0.44, 0.58)	(1.01, 1.11)
ln(GDP)$_d$	1.01***	0.39***	0.62***	1.00***	0.39***	0.61***
	(0.95, 1.08)	(0.35, 0.43)	(0.59, 0.66)	(0.94, 1.06)	(0.35, 0.43)	(0.58, 0.64)
WTO Member$_o$	0.09***	−0.05*	0.14***	0.09***	−0.05*	0.14***
	(0.02, 0.16)	(−0.10, 0.01)	(0.11, 0.17)	(0.02, 0.16)	(−0.10, 0.01)	(0.11, 0.17)
WTO Member$_d$	0.29***	0.14***	0.15***	0.29***	0.14***	0.15***
	(0.23, 0.35)	(0.10, 0.18)	(0.11, 0.18)	(0.23, 0.35)	(0.10, 0.18)	(0.12, 0.19)
ln(MR)$_o$	0.50***	−0.06*	0.56***	0.50***	−0.06*	0.56***
	(0.42, 0.58)	(−0.12, 0.002)	(0.52, 0.60)	(0.41, 0.58)	(−0.12, 0.002)	(0.52, 0.60)
ln(MR)$_d$	0.18***	−0.21***	0.39***	0.18***	−0.21***	0.39***
	(0.14, 0.22)	(−0.24, −0.18)	(0.37, 0.41)	(0.14, 0.22)	(−0.24, −0.18)	(0.37, 0.41)
N	657,054	657,054	657,054	657,054	657,054	657,054
R^2	0.84	0.71	0.88	0.84	0.71	0.88
Adjusted R^2	0.83	0.70	0.87	0.83	0.70	0.87

OLS coefficients with 95 percent confidence intervals in parenthesis (with robust standard errors clustered on the dyad). All estimated models include dyad and year fixed effects. *** p less than 0.01, ** p less than 0.05, * p less than 0.1

flows, the PPML examines trade flows in levels. As a result, whereas the sum of the covariates in the log of the two margins will equal the effect on log trade, this will not be the case in the PPML specification.

The results of the PPML specifications are presented in appendix Table A.3. In line with the results discussed above, the estimates show that successful coups significantly decrease trade along the extensive margin while increasing it along the intensive margin (although this effect is not significant) (models 2 and 3). Overall, they tend to depress total exports, although this effect does not rise to conventional levels of statistical significance (model 1). Failed coups significantly decrease both total exports and the extensive margin while insignificantly increasing it along the intensive margin (models 1-3). Increased coup risk has a negative effect on total exports, with the bulk of the significant effects coming through the extensive margin. Overall, the results of the PPML specification are broadly in line with our preferred log-linear specification.

2.5.1 Accounting for Importer Idiosyncrasies

While the results presented in Table 2.1 are consistent with our theoretical expectations, it might be useful to include additional controls to limit any spurious effects. For one, it is possible that our indicator of coup risk is simply picking up the effect of general political instability (and hence the volatility of trade policy) in the destination country. Indeed, there is evidence in the existing literature that countries with unstable trade policies tend to attract less trade and investment (Handley and Limao 2015; Howell and Chaddick 1994; Levchenko 2012). Failure to account for this could potentially bias our estimates. In the same vein, it is possible that the probability of coup attempts are tied to the level of constraints on the chief executive (Powell 2012; Sudduth 2017). The estimated effect of coups could therefore be biased if we fail to properly account for this.

To address these issues, I include a control for the feasibility of policy change, *Polcon*. This indicator is developed by Henisz (2002) and captures the extent to which a change in the preferences any one political actor could lead to an unanticipated change in government policy. The index captures the effect of political instability associated with the number of independent branches of the government that have veto power over policy change. It also accounts for the presence of upper and lower houses of the legislature (more branches increase executive constraints) and the extent of preference heterogeneity within the branches of the legislature among others. The index ranges from 0 to 1 with higher scores indicating more political constraints and thus a lower probability of policy change.

Previous studies also show that the potential for sanctions has an important deterrent effect on bilateral trade (Early 2012; Thies and Peterson 2015). To the extent that successful coups attractive punitive sanctions from trading partners and the international community, our coup risk indicator may be picking up some of the effect of anticipated sanctions. In other words, there is a potential positive relationship

between coup risk and the possibility of sanctions and so firms may hesitate to do business in countries that may likely become targets for sanctions in the near future. If this is true, our coup risk indicator may pickup some of this hesitancy. This could bias our estimates. To account for this possibility, I include *sanctioned*, a dichotomous variable coded 1 for years in which the destination country is under sanctions. Sanctions data comes from the TIES dataset (Morgan et al. 2014).

Relatedly, bilateral trade flows may be influenced by the foreign policy orientation of the destination country. Governments that have a general "anti-west" orientation or have a low adherence to western/neoliberal norms may be less likely to attract new trade and investment from foreign firms. These governments may also be simultaneously more politically unstable and coup-prone. This could bias the estimates of our coup covariates. To account for the foreign policy orientation of host governments, particularly towards the US-led global liberal order, I use the *ideal point* index developed by Bailey et al. (2017). Their index draws on a state's voting record in the UN General assembly to make inferences about the state's general foreign policy preferences. The index is constructed to minimize noise by using information on the content of the UN's agenda documents, making these estimates comparable over time. Higher values of the index indicate greater alignment of a state's foreign policy preferences with those of the United States.

Table 2.2 presents the results of this exercise. Accounting for the above potentially confounding factors produces results that are largely consistent with our baseline results. However, successful coups now have a negative effect on total exports and along the intensive margin (although this effect is insignificant). Failed coup and increased coup risk continue to have negative effects on total exports and along both dimensions, although the magnitudes of these effects are slightly less than those of our baseline results.

Table 2.2: Structural Gravity Models - Accounting for Political Stability, Sanctions and Idealpoint

	ln(Exports) Model 1	ln(Int. Margin) Model 2	ln(Ext. Margin) Model 3	ln(Exports) Model 4	ln(Int. Margin) Model 5	ln(Ext. Margin) Model 6
Coup Success$_{t-1}$	-0.10^{***}	-0.03	-0.07^{***}			
	$(-0.17, -0.03)$	$(-0.09, 0.03)$	$(-0.10, -0.04)$			
Coup Failure$_{t-1}$	-0.07^{*}	-0.04	-0.03^{**}			
	$(-0.15, 0.005)$	$(-0.10, 0.03)$	$(-0.07, -0.0003)$			
Coup Risk$_{t-1}$				-0.06^{*}	-0.01	-0.05^{***}
				$(-0.11, 0.002)$	$(-0.05, 0.04)$	$(-0.08, -0.02)$
ln(GDP)$_o$	1.73^{***}	0.63^{***}	1.10^{***}	1.73^{***}	0.63^{***}	1.10^{***}
	(1.60, 1.85)	(0.54, 0.72)	(1.04, 1.15)	(1.60, 1.85)	(0.54, 0.72)	(1.04, 1.15)
ln(GDP)$_d$	0.89^{***}	0.34^{***}	0.55^{***}	0.88^{***}	0.34^{***}	0.54^{***}
	(0.82, 0.96)	(0.29, 0.39)	(0.51, 0.58)	(0.81, 0.95)	(0.29, 0.39)	(0.50, 0.58)
WTO Member$_o$	-0.02	-0.10^{***}	0.08^{***}	-0.02	-0.10^{***}	0.08^{***}
	$(-0.09, 0.05)$	$(-0.16, -0.04)$	(0.05, 0.12)	$(-0.10, 0.05)$	$(-0.16, -0.04)$	(0.05, 0.12)
WTO Member$_d$	0.32^{***}	0.18^{***}	0.14^{***}	0.32^{***}	0.18^{***}	0.14^{***}
	(0.26, 0.39)	(0.13, 0.23)	(0.10, 0.17)	(0.26, 0.39)	(0.13, 0.23)	(0.10, 0.17)
ln(MR)$_o$	0.69^{***}	0.08^{*}	0.62^{***}	0.69^{***}	0.08^{*}	0.62^{***}
	(0.58, 0.81)	$(-0.01, 0.16)$	(0.56, 0.67)	(0.58, 0.81)	$(-0.01, 0.16)$	(0.56, 0.67)
ln(MR)$_d$	0.03	-0.27^{***}	0.30^{***}	0.03	-0.27^{***}	0.30^{***}
	$(-0.01, 0.07)$	$(-0.30, -0.24)$	(0.28, 0.32)	$(-0.01, 0.07)$	$(-0.30, -0.24)$	(0.28, 0.32)
Polcon$_d$	0.12^{**}	0.01	0.11^{***}	0.13^{***}	0.01	0.12^{***}
	(0.03, 0.21)	$(-0.06, 0.08)$	(0.06, 0.15)	(0.04, 0.23)	$(-0.06, 0.08)$	(0.08, 0.17)
Sanctioned$_d$	-0.02	-0.02^{*}	0.003	-0.02	-0.02^{*}	0.005
	$(-0.06, 0.01)$	$(-0.05, 0.004)$	$(-0.01, 0.02)$	$(-0.05, 0.02)$	$(-0.05, 0.004)$	$(-0.01, 0.02)$
Idealpoint$_d$	0.11^{***}	0.04^{**}	0.07^{***}	0.11^{***}	0.04^{**}	0.07^{***}
	(0.07, 0.16)	(0.01, 0.07)	(0.05, 0.09)	(0.07, 0.16)	(0.01, 0.07)	(0.05, 0.09)
N	491,919	491,919	491,919	491,919	491,919	491,919
R^2	0.86	0.74	0.90	0.86	0.74	0.90
Adjusted R^2	0.85	0.73	0.89	0.85	0.73	0.89

OLS coefficients with 95 percent confidence intervals in parenthesis (with robust standard errors clustered on the dyad). All estimated models include dyad and year fixed effects. *** p less than 0.01, ** p less than 0.05, * p less than 0.1

2.5.2 Accounting for Endogeneity

While we analyze the effect of coups and coup risk on trade, it is equally possible that trade influences the likelihood of coups and coup risk. In fact, the capitalist peace literature suggests that increasing economic ties between states can prompt belligerents in civil conflict to find peaceful resolutions to their disputes. Extending this to coups, it is possible that as states trade more with the rest of the world, the opportunity costs of domestic political upheaval is raised. This increased potential for economic losses and damaged economic reputations could influence potential coup makers to use constitutional means to resolve their disputes with the incumbent (Powell and Chacha 2016).

The conventional approach to dealing with such potential endogeneity is to use

instrumental variables but given our multiple dependent variables, finding unique instruments may prove insurmountable. In any case, the validity of any instruments can always be called into question. In lieu of the instrumental variable approach, I attempt to provide a more direct test of the causal mechanism underlying our theoretical framework. In the model, coup risk affects trade by creating uncertainty regarding the future direction of trade policy. This induces firms to precautionarily delay making the sunk or partially irreversible costs associated with entering a foreign market. This suggests that the effect of coup risk is increasing in the size of market entry costs i.e. coup risk has a more detrimental effect on trade as market entry costs increases. Providing a direct test of this mechanism should increase confidence that coup risk does indeed affect bilateral trade primarily through the extensive margin.

To test this proposition, we use data on the number of start-up procedures required to register a business from the World Bank's Doing Business survey project (2013). Here, start-up procedures refer to all necessary processes required to start a business in the destination country. This index captures the number of official interactions required to obtain the necessary permits and licenses and to complete all inscriptions, verifications and notifications to start operations. We use this index as a simple indicator of the sunk costs foreign firms incur in entering the destination market.

The index ranges from 1 to 21 but exhibits considerable variation across countries over time. We exploit this variation to test the underlying causal mechanism of our theoretical framework by interacting this index with our measure of coup risk. To ease interpretation, I transform the index into three categorical bins. Countries with 7 or fewer start-up processes are tagged as "low cost" locations whereas those with 15 or more processes are tagged as "high cost". The baseline category are medium cost countries - those with between 8 and 14 processes. We would expect coup risk to have a higher dampening effect on trade for countries that have higher start-up processes.

The results of this exercise is presented in appendix Table A.4. The estimated results show that for countries in the low cost category, a 1-unit increase in coup risk decreases exports by 0.01%. In comparison, when entry costs are high, a 1-unit increase in coup risk decreases exports by 0.12%, a difference of 0.11 percentage points. If we assume that trade between a typical country pair is $500 million per year, this means compared to a low cost location, a high cost location will see about $55 million less trade per year for a 1-unit increase in coup risk. Importantly, the results show that this dynamic is driven mainly by coup risk's effect on the extensive margin of trade. This lends strong support to the hypothesized causal dynamics of our theoretical framework.

For actual coup attempts, I run additional models that estimate the effect of trade on coups. These models have lagged exports as the explanatory variable with coup attempts as the dependent variable (I also estimate models with coup risk as the dependent variable). An insignificant effect of exports on the coup attempts would provide further evidence that endogeneity does not pose a serious threat to our inferences here. The results of this exercise are presented in the appendix Table A.5. The results show that a 1% increase in bilateral exports increases coup risk in the destination country by 0.02 points and the odds of a coup attempt by 0.07 points. However, none of these effects are statistically significant. This is true even when we control for common covariates of coups such as GDP per capita, political constraints and population size. Thus, while endogeneity between trade and coups potentially poses a challenge to inference, it does not appear to be a particularly serious concern here.

2.5.3 Allowing for Trade Adjustment Lags

Finally, we allow for the possibility that the adjustment of bilateral trade flows to changes in coup risk or the occurrence of coups may not be instantaneous. Because

our estimates are based on observations pooled over consecutive years, the effect of coup risk and coups may be understated if they only kick-in after a few years or are amplified with time. To address this potential concern, other researchers have used interval data instead of data pooled over consecutive years (e.g. Olivero and Yotov (2012); Yotov et al. (2016)). I follow this approach here and estimate dynamic gravity models with 3-year and 5-year interval trade data. To save space, the results of this exercise are presented in the appendix (Table A.6and Table A.7). The results are largely consistent with those presented here - failed coups and increased coup risk have negative effects on overall exports and along both dimensions while the effect of successful coups are mixed.[7].

To further increase confidence in our results, I also estimate models that include lagged values of the dependent variables as explanatory variables. I estimate two different specifications, one that includes dyad and year-fixed effects and one without these fixed effects. These models are presented in appendix Table A.8 and Table A.9. The results are largely consistent with our baseline results.

Overall, the results presented here provide broad support for our theoretical expectations. Failed coups and increased coup risk have significant negative effects on the intensive and extensive margins and on overall exports. The effects of successful coups are mixed although they generally lean negative.

2.6 Conclusion

This paper shows that while failed coups and increased coup risk negatively impact bilateral trade while the effect of successful coups is mixed, depending on post-coup policies and actions of the new leaders. The results also show that coups and increased coup risk influence bilateral trade largely through their impact on the extensive mar-

[7]Coup risk has an insignificant positive effect along the intensive margin in the 3-year model (Table A.6 model 5)

gin of trade i.e. the range of goods traded with the coup state. This has important implications for the coup-trade literature. For one, the results demonstrate that successful and failed coups can have very different impacts on the trade of the coup state. This challenges the implicit assumption of equivalency in effect underlying studies that only analyze the aggregate effect of coup attempts. The results also show that successful and failed coups can have countervailing impacts on along the intensive and extensive margins of trade. This is important because it suggests that although the overall effect of coups on trade may be small, this may derive from strong countervailing impacts along the extensive and intensive dimensions of trade. Failing to account for these effects means we underestimate and under-appreciate the full impact that coups have international trade relations.

Beyond this, the results show that increased risk of coups also tend to dampen bilateral trade, along both dimensions. Policy-wise, the fact that increased coup risk may preemptively reduce trade is particularly revealing, especially in an era where many countries are trying to develop through trade. The results suggest that a high coup risk may undermine this path to development so perhaps, developing countries might want to invest in lowering international perceptions that they are high risk locations for coups.

There are some promising avenues for future research. One interesting question to answer is if increased coup risk deters other types of international investments such as foreign direct investment (FDI) or foreign aid. Recent research suggests that politically risky authoritarian regimes with poor institutions attract more FDI than we would expect (Beazer and Blake 2018; Tomashevskiy 2017). Authoritarian regimes often have weak protection for investors and property rights so it is puzzling why investors continue to send capital to these politically risky locations. Some analysts suggest that investors may be funneling increased FDI to authoritarians in a bid to help the incumbent hold on to power. If this is the case, high coup risk locations

should attract more FDI. Failed coups should also result in more incumbent-saving investments form foreign firms. Investigating these counter-intuitive possibilities could be a fruitful research avenue.

Another interesting possibility is to examine if elevated coup risk affects the policies of the incumbent government. For instance, the literature on intra-industry trade suggests that countries have very little incentive to unilaterally reduce tariffs to attract more trade and investment when the share of intra-industry trade is high(Kim 2017; Thies and Peterson 2015). However, recognizing that a high coup risk disincentivizes foreign firms from exporting to the country, incumbents in high risk countries could unilaterally reduce tariffs as a way to attract investment. Observing such behavior could be evidence that coup risk does shape the trade policies of incumbents in coup-prone countries.

Chapter 3

Intra-Industry Trade and Coup Propensity

3.1 Introduction

Classic trade is typically *between* industries, involving the exchange of distinct commodities of goods between trading partners such as the US importing agricultural commodities from Bolivia and exporting manufactured goods in return. Since the end of World War II, an increasing proportion of international trade has been *within*, rather than between industries. This intra-industry trade (IIT) involves the exchange of differentiated, often branded goods such as domestically produced automobiles and household electronic appliances for foreign made ones.

In spite of this marked shift, literature on the political consequences of this change in trade composition is only beginning to emerge. One important stream of this emerging literature analyzes the effects of IIT on the political behavior of states in the international arena. The central focus is to explain how IIT changes a state's behavior towards other states, such as its propensity to enter into preferential trade agreements or to initiate conflict or sanctions against other states (e.g. Kim and Wong 2015; Madeira 2016; Osgood 2016; Peterson and Thies 2012; Thies and Peterson 2015). These studies suggest that compared to inter-industry trade, resistance to liberalization is lower under intra-industry trade because domestic actors are not harmed as much by the removal of trade barriers. In addition, a higher proportion of dyadic intra-industry trade implies a lower likelihood of asymmetric dependence. The lower resistance to liberalization along with an increased symmetry of trade gains

and opportunity costs contribute to cooperation between states and fewer interstate conflicts.

An unexplored dimension of this is whether the pacifying effects of intra-industry trade extend to the domestic political environment. To fill this gap, I analyze how intra-industry trade and its horizontal and vertical components affect an important form of domestic conflict - coups. The causal logic is built on the fact that coups and coup-induced instability become increasingly costly for consumers, firms and the government as intra-industry trade increases. We therefore expect support for coups among consumers and firms to decrease and government efforts aimed at preventing coups to increase as intra-industry trade increases, resulting in fewer coup attempts. In addition, I contend that the differing firm-level dynamics of horizontal and vertical intra-industry trade suggest that horizontal intra-industry trade has a bigger pacifying effect on coup propensity. I test these provisions for a global sample of 151 countries using commodity-level trade data over the period 1962-2014 and find empirical support. These results are robust to a variety of controls, specifications and alternative explanatory mechanisms in the existing literature. Placebo tests in lieu of instrumental variables also support our theoretical framework.

In the sections that follow, I highlight the changing nature of international trade and layout how increased intra-industry trade increases the opportunity costs of coups for consumers, firms and incumbents, motivating them to limit support for coups or institute measures that lower their propensity. I then present the analytical framework. Results and conclusions follow that.

3.2 Intra-Industry Trade

Classic models of trade are based on the principle of comparative advantage, founded on David Ricardo's (1913) proposal that states benefit from specializing in the production of goods they are efficient at producing and trading them for other goods

produced elsewhere by the same principle of efficiency maximization. The Heckscher-Ohlin (HO) model extends this basic argument to include three factors of production - land, labor and capital - that endow states with their comparative advantage (Heckscher and Ohlin 1933). A classic example of this is when France exports wine to Britain and imports British cloth. Such trade was characteristic of what has become known as the "first wave of globalization" (Harley 1996). International trade during the first wave of globalization which started in the mid-nineteenth century was primarily driven by comparative advantage, resulting in strong inter-industry trade (exchange of one type of good for another) patterns. For instance, the US and Europe largely imported agricultural commodities, minerals and other raw materials from developing countries and exported manufactured goods like textiles, railroad materials and industrial goods in return (Madeira 2016). Trade was therefore largely between industries.

Since the end of World War II, trade has increasingly shifted from inter- to intra-industry - often among countries that have similar factor endowments and at similar levels of development. This intra-industry trade (IIT) has expanded rapidly in the last few decades, now accounting for the bulk of international trade (Alt et al. 1996; Milner 1999). We can further disaggregate intra-industry trade into its horizontal and vertical components. Horizontal intra-industry trade (HIIT) involves the exchange of goods of comparable quality that perform the same function but which are differentiated by brands. This type of trade is driven by differences in consumer taste and preferences across states (Krugman 1979). One example of horizontal intra-industry trade is German exports of Volkswagen SUVs in exchange for American-made Ford SUVs of comparable quality. Horizontal intra-industry trade is most common among countries that have comparable economic development and similar factor prices (Fontagné et al. 1998; Markusen and Venables 1998).

We can contrast this with vertical intra-industry trade (VIIT), which involves the

exchange of similar goods that are differentiated by quality. An example of such trade is the case where China exports low-quality women's shoes to Italy while importing similar but higher-quality shoes in return. Vertical intra-industry trade is often driven by the desire of firms (particularly multinational firms) to take advantage of lower tariffs and transport costs by situating the various stages of production in different countries (Greenaway et al. 1995). The drive to minimize costs gives firms an incentive to specialize production in countries according to relative factor prices. The relative abundance of capital in developed countries means that it is cost-efficient to produce capital-intensive goods in developed countries and to produce less capital-intensive (or more labor-intensive) goods in the developing world. However, vertical intra-industry trade can also arise out of differences in comparative advantage among states with differing factor endowments under conditions of perfect competition (Falvey 1981). In this sense, vertical intra-industry trade is somewhat similar to inter-industry trade. Prior research shows that vertical intra-industry trade is indeed more likely between developed and developing countries (Fontagné et al. 1998; Manger 2012).

3.3 Costly Coups

At its core, a coup is an overt demonstration of dissatisfaction with the status quo and an explicit attempt to change it. Military coups are common when perceived government failures create grievances that the military then intervenes to resolve. One important source of such grievance is dissatisfaction with economic management and the general economic performance of the state. For instance, O'Kane (1981) highlights increased inter-industry trade as an underappreciated source of persistent coups. Specifically, the exacerbated poverty resulting from over specialization in and dependence on primary commodity exports. In such circumstances, even the most responsible governments are open to criticisms of corruption, economic mismanagement and incompetence, providing a convenient pretext for military intervention.

Compared to inter-industry trade, Intra-industry trade involves different dynamics but whether or not it has a pacifying or exacerbating effect on coup propensity has remained unexplored. To fill this gap, I develop a theoretical framework that analyzes how intra-industry trade and its components affect coup propensity. The causal logic is built on the fact that coups and coup-induced instability become increasingly costly for consumers, firms and the government as intra-industry trade increases. We therefore expect support for coups among consumers and firms to decrease and government efforts aimed at preventing coups to increase as intra-industry trade increases, resulting in fewer coup attempts.

Below, I highlight how intra-industry trade (and its horizontal and vertical components) incentivizes consumers and firms to limit their support for coups. I also highlight how increased intra-industry trade incentivizes governments to adopt policies that enhance political stability and reduce the risk of potential coups.

3.3.1 Consumers

For consumers, Intra-industry trade expands the set of product choices available. For example, consumers in a car-producing country are not limited to buying varieties produced domestically but also have access to foreign-made ones. In addition, more variety means more competition in the market, forcing firms to lower their markups and prices. As such, coups that limit the availability of foreign varieties on the domestic market reduces their consumption utility and lowers their welfare. Consumers, anticipating the shortage of goods in the aftermath of a coup, could stockpile goods. This may spark panic buying among sections of consumers and drive up prices ahead of any potential coup.

Consumer welfare may also suffer in the aftermath of a coup due to suppressed demand for goods as people's natural tendency to save in times of political crisis kicks in (Dercon 2002). This may be compounded by lower consumer purchasing

power due to difficulty in obtaining deposits from banks. Coups could also shrink consumer income (and demand) by creating security situations that make it hard for workers to get to their workplaces. Importantly, this lowered welfare may have electoral consequences as opposition political parties may capitalize on this and make it a campaign issue. Frustrated consumers may punish the government at the polls and threaten its hold on power. This gives the incumbent government an incentive to maintain the flow of IIT goods and services.

3.3.2 Firms

Consumer love for variety is an important factor the drives the growth of intra-industry trade. Consumers are typically willing to pay a premium for a desired product but the fragmentation of the market into smaller product niches means producing solely for the domestic market may not be profitable. In other words, the domestic market for a niche product may not be big enough to justify the often significant sunk costs involved in producing a good. international Intra-industry trade alleviates this problem by expanding the market for any one particular product, allowing firms to attain the volumes needed to recoup their product development and production costs. The associated increased scale of production reduces average production costs, which aids firm profitability. The expanded market also allows more firms to survive in the face of increased globalization.

Just as intra-industry trade increases the variety of goods available to consumers, it also increases the variety of intermediate production inputs available to domestic firms. This means firms that use these intermediate inputs for their production (even-import competing ones) benefit from intra-industry trade. Firm-level research shows that the increased availability of production inputs under intra-industry trade offers significant benefits to domestic firms that use these inputs. For instance, Halpern et al. (2005) show, based on Hungarian data, that importing foreign varieties of

inputs increase firm productivity by as much as 12 percent. Similarly, Amiti and Konings (2007) show that a 10 percent decrease in tariffs on inputs increased the productivity of Indonesian firms that import their inputs by about 12 percent.

In light of this, the possibility of coups is particularly concerning for domestic firms. As highlighted earlier, under intra-industry trade, competition is product-based and scale economies are important in lowering costs. When countries are at comparable developmental levels with similar factor endowments, IIT favors the country with the better institutions. Its firms can leverage these institutions to increase their productivity and increase their market share both domestically and in export markets, boosting revenues and profits. In contrast, firms in the country with comparatively inferior institutions do less well under IIT. Institutional quality is likely to deteriorate should a coup degenerate into widespread violence. Violent coups could destroy social and private capital and divert scarce resources away from productive activities towards government procurement of weapons, paying soldiers and allied rebel groups (Piplani and Talmadge 2016).

Furthermore, the efforts of coup makers to consolidate power in the aftermath of a coup and struggles by ousted elites to regain power could create an unstable political and economic environment that interrupt business operations. Firms owned by or associated with the previous leaders could also be targeted for nationalization by the new regime. In many developing countries, the most productive firms tend to be the most politically connected so this could significantly reduce domestic production and lead to job losses (Faccio 2006; Fisman 2001). Furthermore, the new regime could institute exchange controls that precipitate a currency crisis that hurt domestic firms' export competitiveness and impede imports of inputs for domestic production. Coups may also make it hard for firms to maintain production levels if they create security concerns that make it hard for workers to report for work. This could increase the prices of domestically produced goods, reduce firm profits and decrease

the competitiveness of domestic exports on the world market. Export-oriented firms therefore have an incentive to lobby government officials and politicians to institute policies that mitigate the risk of coups, such as those that provide strong protection of property rights and the rule of law.

Taking differences in horizontal and vertical intra-industry trade into account, we can theorize that the horizontal component is likely to have a bigger impact on dissuading coups than the vertical component. Recall that horizontal intra-industry trade involves the exchange of goods of comparable quality that essentially perform the same function for the consumer. This means that in the event of any coup-induced trade disruptions, consumers may switch to other brands. This is made easier by the fact that horizontal-IIT goods target the same class of consumers (e.g. high income consumers with a preference for SUVs for instance) and derive most of their sales from consumer loyalty and attachment to specific brands. Firms may therefore loose market share to their competitors if coup-induced sanctions, for instance, keep them locked out of foreign markets.[1] This gives domestic export-oriented firms involved in horizontal-IIT a tremendous incentive to discourage coups and push for policies that reduce coup risk.

On the other hand, vertical intra-industry trade involves the exchange of goods of differing quality levels. Thus, producers often target different classes of consumers. For instance, manufacturers in developing countries may target low-income consumers in rich developed countries, where their goods compete alongside more expensive versions aimed at a more affluent group. Quality differences in the goods means they are less easily substitutable for consumers. Also, it is considerably harder for low-income consumers to suddenly switch to more expensive versions of products when coups limit the availability of these products on the market. This means it is

[1]It may also be prohibitively expensive and involve a considerable amount of marketing effort to get customers back once sanctions have been lifted, especially if consumers have become attached to the substitute brands.

relatively easier for producers to hold on to their customers and comparatively easier to lure them back once coup-induced instability has abated. Thus compared to their horizontal-IIT counterparts, export-oriented firms involved in vertical-IIT likely have a slightly higher tolerance for coup-induced disruptions. Consequently, we expect that horizontal-IIT has a bigger inhibiting impact on coups than vertical-IIT.

3.3.3 Government

As highlighted previously, the potential disruptions of coups to consumer welfare and firm operations gives governments a strong incentive to prevent coups. In addition to this,governments also have more self-interested motives to keep coups at bay. For one, export-oriented firms have to become more productive to remain competitive as intra-industry trade increases (Melitz 2003; Melitz and Trefler 2012). This entails increases in the number of employment opportunities, infrastructure projects and other investments that these firms make. This increases the payoff that support-maximizing politicians can expect from enacting policies favorable to such firms. The expansion in the number of employment opportunities, for instance, can be sold to the electorate as evidence of job creation by politicians. Also, the increase in firm's asset base, reflected in rising share prices and increased dividends to shareholders can be touted as evidence of deft economic management. Bureaucrats can also build a strong case for promotion or the expansion of their departments on the back of such improved firm performance.

Increased intra-industry trade also comes with increased government revenue from tariffs and other trade associated taxes. This increased revenue can be used to fund development projects, welfare schemes and other initiatives that keep the government popular with the electorate. The potential disruptions associated with attempted coups threaten to disrupt or lower these revenue streams, giving the government an incentive to minimize the risk of coups. Thus, as intra-industry trade increases, we

should observe increased government efforts to limit the probability of coups (such as reduced use of repression, increased respect for human rights etc.). This incentive to prevent coups is strong regardless of whether trade is dominated by horizontal or vertical-IIT.

We can thus test the following hypotheses:

H1: *Coup propensity decreases as the share of intra-industry trade increases.*

H2: *Increase in horizontal-IIT has a bigger influence on lowering coup propensity than increases in vertical-IIT.*

3.4 Analytical Framework

I test the argument that increases in intra-industry trade raises the cost of coups for various domestic constituents, incentivizing them to limit support for coups and pursue actions that reduce coup propensity. Consequently, an increase in intra-industry trade should be associated with a decrease in coup propensity. I also aim to show that increases in horizontal-IIT, because of its firm-level dynamics, has a bigger pacifying effect on coups than its vertical counterpart. Towards this end, I draw on a global sample of 151 countries over the period 1962-2014. The time frame for the analysis is bounded on both ends by data availability.

3.4.1 Measuring Intra-Industry Trade

I employ trade data disaggregated to the commodity level using the Standard International Trade Classification (SITC) level 5, the most detailed level of disaggregation under the SITC convention. SITC trade data comes from UN COMTRADE (2018). We start by disaggregating a state's trade into the fraction accounted for by inter-and intra-industry trade. Following standard convention, trade is classified as inter-industry if a country only imports (exports) a particular commodity without

exporting (importing) it. Following Manger (2012), I also classify trade as inter-industry if a state engages in two-way trade of a commodity but the value of the smaller flow is less than 10 percent of the larger one (for the robustness analyses, I recalculate these using a 15% threshold). Such trade is likely based on comparative advantage differences between the country and its trade partners. The 10 percent cutoff eliminates trades that are not a structural feature of bilateral trade and helps us avoid overstating the value of intra-industry trade.

Next, we disaggregate the remaining two-way (intra-industry) trade into its horizontal and vertical components. Many scholars use threshold models for this (see e.g. Greenaway et al. 1994; Manger 2012; Weymouth 2012). These methods are based on the assumption that differences in the quality of traded goods between a country and its trade partners can be inferred from differences in the unit value of the goods.[2] So if the unit value of traded goods within a given product category differ by a certain percentage, then the trade is classified as vertical intra-industry trade. If it stays below the threshold, it is classified as horizontal intra-industry trade. Most studies use a threshold of either 15 or 25 percent.

I use the 15 percent threshold. That is, horizontal intra-industry trade is any two-way trade where the unit values of the traded products differ by less than 15 percent. If the unit values exceed the 15 percent threshold, the trade is classified as vertical intra-industry trade (for the robustness analyses, I recalculate these using the 25 percent threshold). I then express the horizontal and vertical intra-industry trade as a fraction of the state's total trade.

[2]Alternative ways of disaggregating intra-industry trade into its horizontal and vertical components include hedonic pricing approaches (e.g. Cooper et al. 1993) or price elasticity methods (e.g. Brenton and Winters 1992). However, these approaches are data intensive and the required data is often unavailable for many countries. Interested readers should consult Flam and Helpman (1987) and Azhar et al. (2006) for helpful reviews of these and other issues associated with the measurement of horizontal and vertical intra-industry trade.

3.4.2 Coup Propensity

To construct our dependent variable, I draw on coup data from Powell and Thyne (2011). Coups are defined as "illegal and overt attempts by the military or other elites within the state apparatus to unseat the sitting executive." I code a dichotomous variable - *Coup Attempts* - which takes a value of 1 if a country experienced at least 1 coup attempt in any particular year (regardless of its success or failure).

3.4.3 Controls

I include a series of standard controls for coup analysis. Prior research shows that coups tend to be high in countries with low per capita income (Kim 2014). To account for this, I include GDP per capita in the analytical models. Data on per capita income come from the World Bank's World Development Indicators database (WorldBank 2018). The number and frequency of coup attempts may also be driven by the type of regime in power. Prior studies show that democratic regimes are significantly less likely to experience coups, relative to non-democratic ones (Marinov and Goemans 2014; Miller et al. 2016).

To account for this, I include the Polity IV scores in all estimated models. Polity scores measure how politically competitive a polity is and range from -10 for full autocracies to +10 for fully democratic states. Related to regime type, I also account for the average regime type in the region where a country is located. Gassebner et al. (2016) show that countries surrounded by democracies typically experience fewer coups, possibly because neighboring democracies tend to deny cooperation to insurgent regimes. To capture this effect this, I include the average polity score for a country's regional neighbors. Polity data comes from Marshall and Jaggers (2016).

Previous research also shows that coups are more likely during times of armed conflict (Gassebner et al. 2016; Powell 2012). To account for this, I include a variable that captures the existence of domestic armed conflict. This variables is coded 1 for

each year of armed conflict within a country. Data on armed conflict comes from the Center for Systemic Peace (Marshall 2017). More populous countries also tend to experience higher incidence of coups (Wells 1974). I include a control for the size of a country's population to account for this. Population data is taken from the World Banks' World Development Indicators (WorldBank 2018). Coups also tend to exhibit duration dependence i.e. they become less likely the longer it has been since the last coup. To account for this duration dependence, I include the number of years since the last coup attempt and its squared and cubed versions (Beck et al. 1998; Carter and Signorino 2010). Appendix Table B.1 has descriptive statistics for selected variables.

3.4.4 Analysis

I use panel logistic regression models as the main approach to estimate the effect of intra-industry trade on coup attempts. I employ two main specifications - one that uses the share of intra-industry trade as the explanatory variable and a second that uses the share of horizontal and vertical intra-industry trade. In addition to the baseline logistic models, I estimate rare events logistic models to account for the relative rarity of coups.

3.5 Results

We start by examining whether intra-industry trade has the hypothesized negative effect on coups. The results, presented in Table 3.1, show that this is indeed the case. Model 1 shows that intra-industry trade has a significant negative effect on coup propensity. Model 2, which disaggregates IIT into its horizontal and vertical components, shows that horizontal-IIT has a significant pacifying effect on coups while vertical-IIT is marginally aggravating (although the effect of vertical-IIT does not rise to conventional levels of significance). Importantly, the absolute effect of horizontal-IIT on coup propensity is over 153 times bigger than the effect of vertical-IIT. The rare

events logistic models are in agreement. Intra-industry trade is significantly pacifying for coup attempts (Model 3).[3] Model 4 confirms that horizontal-IIT is significantly pacifying towards coups while vertical-IIT is aggravating although this effect is not statistically significant. In addition, the absolute effect of horizontal-IIT over 138 times bigger than that of vertical-IIT. These results are inline with our theoretical expectations.

In Appendix Table B.3, I lag intra-industry trade by one period to test if its effects extend beyond the current period. The results show that this is indeed the case. Intra-industry trade has a significant pacifying effect on coup attempts in the next period (Model 1). In the rare events model, the effect of intra-industry trade remains robustly negative although its coefficient misses statistical significance (Model 3). In addition, the lagged models show that the pacifying effect of intra-industry trade is about 22 percent less than its contemporaneous effect (Model 1). Similarly, lagged horizontal-IIT has a significant pacifying effect on current coups while lagged vertical-IIT is significantly aggravating. Similar to models in Table 3.1, the effect of lagged horizontal-IIT is orders of magnitude greater than that of lagged vertical-IIT across all estimated models.

To ensure that our results are not dependent on the thresholds used to calculate the share of intra-industry trade, I estimate additional models that use intra-industry trade shares calculated using alternate thresholds. I recalculate the share of intra-industry trade at the 15% threshold i.e. trade is classified as intra-industry only if the value of imports for a particular commodity is at least 15% of exports of the same commodity (or vice versa). Similarly, two-way trade is classified as horizontal if com-

[3]In Appendix Table B.2, I present Models 1 and 3 alongside models that include the share of inter-industry trade (Models 2 and 4). The models show that while intra-industry trade is pacifying towards coups, inter-industry trade increases coup propensity. This confirms earlier findings by O'Kane (1993) who argues that increased dependence on primary commodity inter-industry trade fuels coups. Note that these models are mirror images of each other because the shares of intra- and inter-industry trade together sum to one. This means a negative coefficient for intra-industry trade necessarily implies a positive coefficient for inter-industry trade.

Table 3.1: Intra-Industry Trade and Coups Attempts

	DV: Coup Attempts		DV: Coup Attempts	
	Logistic		Rare Events Logistic	
	Model 1	Model 2	Model 3	Model 4
IIT	-3.44^{**}		-3.25^{**}	
	$(-6.48, -0.41)$		$(-6.28, -0.22)$	
HIIT		-64.36^{***}		-59.61^{***}
		$(-108.97, -19.74)$		$(-104.23, -14.99)$
VIIT		0.42		0.43
		$(-0.67, 1.50)$		$(-0.65, 1.52)$
log(GDPpc)	-0.24^{***}	-0.22^{***}	-0.24^{***}	-0.22^{***}
	$(-0.35, -0.13)$	$(-0.34, -0.10)$	$(-0.35, -0.13)$	$(-0.34, -0.10)$
Pop.	-0.01^{**}	-0.005^{**}	-0.005^{**}	-0.004^{**}
	$(-0.01, -0.001)$	$(-0.01, -0.000)$	$(-0.01, -0.001)$	$(-0.01, -0.000)$
Polity	-0.07^{***}	-0.07^{***}	-0.07^{***}	-0.07^{***}
	$(-0.09, -0.04)$	$(-0.09, -0.04)$	$(-0.09, -0.04)$	$(-0.09, -0.04)$
Region Polity	0.002	0.004	0.002	0.004
	$(-0.04, 0.04)$	$(-0.04, 0.04)$	$(-0.04, 0.04)$	$(-0.04, 0.04)$
Armed Conflict	0.78^{***}	0.78^{***}	0.79^{***}	0.78^{***}
	$(0.37, 1.20)$	$(0.36, 1.20)$	$(0.37, 1.21)$	$(0.37, 1.20)$
Trade Opennes	0.07	0.10	0.09	0.12
	$(-0.18, 0.32)$	$(-0.17, 0.37)$	$(-0.16, 0.34)$	$(-0.15, 0.39)$
Coup Time	-0.20^{***}	-0.20^{***}	-0.19^{***}	-0.19^{***}
	$(-0.26, -0.14)$	$(-0.26, -0.13)$	$(-0.25, -0.13)$	$(-0.25, -0.13)$
Coup Time^2	0.01^{***}	0.01^{***}	0.01^{***}	0.01^{***}
	$(0.004, 0.01)$	$(0.004, 0.01)$	$(0.003, 0.01)$	$(0.003, 0.01)$
Coup Time^3	-0.000^{***}	-0.000^{***}	-0.000^{***}	-0.000^{***}
	$(-0.000, -0.000)$	$(-0.000, -0.000)$	$(-0.000, -0.000)$	$(-0.000, -0.000)$
Constant	0.63^{*}	0.14	1.00^{***}	0.50
	$(-0.08, 1.33)$	$(-1.25, 1.54)$	$(0.29, 1.70)$	$(-0.89, 1.90)$
N	5,286	5,286	5,286	5,286
Log Likelihood	$-1{,}002.46$	-999.54	$-1{,}002.46$	-999.54
AIC	2,026.92	2,023.08	2,026.92	2,023.08

Coefficients with 95 percent confidence intervals in parenthesis.*** p less than 0.01, ** p less than 0.05, * p less than 0.1.

modity imports (exports) are worth over 25% of exports (imports). Two-way trade less than 25% in value are classified as vertical. The results of using these alternate thresholds are presented in Appendix Table B.4. The results remain substantively unchanged from those presented in Table 3.1 above although the pacifying effect of IIT and horizontal-IIT are comparatively stronger while the effect of vertical-IIT remains unchanged.

We also need to account for two important potential factors that may bias our estimates. Incumbents at risk of coups may seek closer ties with the international community. These could take the form of entering trade agreements with major countries or joining various regional and global inter-governmental organizations (Pevehouse 2005). These ties provide incumbents an avenue to signal their legitimacy and international acceptance. Incumbents may also seek greater international engagements in hope of increasing the probability of international condemnation following a coup attempt. Previous research suggests that countries with close ties to the broader international community tend to have higher levels of trade (Mansfield and Reinhardt 2015). This is potentially correlated with the share of trade that is intra-industry. In this case, our measure of intra-industry trade may pick up some of this "internationalization" effect. To account for this potential source of bias, I include a count of the number of international organizations (IO) that a country is a member of. Data on IO membership comes from the Correlates of War International Governmental Organizations Dataset (Pevehouse et al. 2004).

The relationship between trade and coups may also be muddied by the general foreign policy orientation of the incumbent government. Previous research shows that the level of foreign investment is an important determinant of manufacturing activity (which is important for intra-industry trade) in developing countries (Greenaway et al. 1995). Governments that have a general "anti-west" orientation or have a low adherence to western/neoliberal norms may be less likely to attract new trade

and investment from foreign firms. These governments may also be simultaneously more politically unstable and coup-prone. This could potentially bias our estimates. To account for a country's foreign policy orientation, particularly towards the US-led global liberal order, I use the *Idealpoint* index developed by Bailey et al. (2017). Their index draws on a state's voting record in the UN General assembly to make inferences about the state's general foreign policy preferences. The index is constructed to minimize noise by using information on the content of the UN's agenda documents, making these estimates comparable over time. Higher values of the index indicate greater alignment of a state's foreign policy preferences with those of the United States.

Table 3.2 presents the results of this exercise. In the face of these additional controls, our estimated results remain substantively unchanged. IIT continues to have a significant pacifying effect on coup attempts across all estimated models, although compared to the results presented in Table 3.1, the estimated effects are significantly stronger (Models 1 and 3). Similarly, horizontal and vertical intra-industry trade remain pacifying and aggravating respectively, although compared to Table 3.1, the effect of horizontal intra-industry trade is significantly stronger (Models 2 and 4).

Another issue we must address is the potentially endogenous relationship between intra-industry trade and coup attempts. Repeated coup attempts, for instance, could creates policy uncertainty and a politically unstable environment that may scare away foreign investors. Past research shows that foreign investment has been crucial to the development and maintenance of a domestic manufacturing base in some developing countries (Johns and Wellhausen 2016; Thomas and Worrall 1994). Domestic manufacturing activity directly contributes to a state's intra-industry trade so coups that decrease manufacturing could have a detrimental impact on the share of intra-industry trade. The conventional way to deal with this potential endogeneity is to use instrumental variables but finding suitable instruments is challenging, especially

Table 3.2: Intra-Industry Trade and Coups (Alternate Mechanisms)

	DV: Coup Attempts		DV: Coup Attempts	
	Logistic		Rare Events Logistic	
	Model 1	Model 2	Model 3	Model 4
IIT	-7.16^{***}		-6.89^{***}	
	$(-11.12, -3.21)$		$(-10.85, -2.93)$	
HIIT		-110.69^{***}		-105.23^{***}
		$(-169.63, -51.75)$		$(-164.17, -46.29)$
VIIT		0.46		0.47
		$(-0.73, 1.65)$		$(-0.72, 1.66)$
log(GDPpc)	-0.23^{***}	-0.22^{***}	-0.23^{***}	-0.21^{***}
	$(-0.36, -0.10)$	$(-0.36, -0.07)$	$(-0.36, -0.10)$	$(-0.36, -0.07)$
Pop.	-0.01^{**}	-0.01^{**}	-0.01^{**}	-0.01^{*}
	$(-0.01, -0.001)$	$(-0.01, -0.000)$	$(-0.01, -0.001)$	$(-0.01, 0.000)$
Polity	-0.07^{***}	-0.07^{***}	-0.06^{***}	-0.07^{***}
	$(-0.09, -0.04)$	$(-0.09, -0.04)$	$(-0.09, -0.04)$	$(-0.09, -0.04)$
Region Polity	0.01	0.01	0.01	0.01
	$(-0.04, 0.06)$	$(-0.04, 0.06)$	$(-0.04, 0.06)$	$(-0.04, 0.06)$
Armed Conflict	0.78^{***}	0.78^{***}	0.78^{***}	0.78^{***}
	$(0.35, 1.21)$	$(0.35, 1.21)$	$(0.35, 1.21)$	$(0.35, 1.21)$
Trade Opennes	0.09	0.13	0.10	0.14
	$(-0.17, 0.34)$	$(-0.14, 0.40)$	$(-0.15, 0.36)$	$(-0.13, 0.41)$
Num IO	0.01	0.01	0.01	0.01
	$(-0.004, 0.02)$	$(-0.01, 0.02)$	$(-0.005, 0.02)$	$(-0.01, 0.02)$
Idealpoint	0.36^{***}	0.35^{***}	0.35^{***}	0.34^{***}
	$(0.15, 0.56)$	$(0.14, 0.55)$	$(0.15, 0.56)$	$(0.14, 0.55)$
Coup Time	-0.24^{***}	-0.24^{***}	-0.23^{***}	-0.23^{***}
	$(-0.32, -0.16)$	$(-0.32, -0.16)$	$(-0.31, -0.16)$	$(-0.31, -0.16)$
Coup Time^2	0.01^{***}	0.01^{***}	0.01^{***}	0.01^{***}
	$(0.01, 0.01)$	$(0.01, 0.01)$	$(0.01, 0.01)$	$(0.01, 0.01)$
Coup Time^3	-0.000^{***}	-0.000^{***}	-0.000^{***}	-0.000^{***}
	$(-0.000, -0.000)$	$(-0.000, -0.000)$	$(-0.000, -0.000)$	$(-0.000, -0.000)$
Constant	0.45	-0.03	0.63	0.14
	$(-0.36, 1.26)$	$(-1.58, 1.51)$	$(-0.18, 1.44)$	$(-1.41, 1.68)$
N	3,887	3,887	3,887	3,887
Log Likelihood	-848.02	-845.53	-848.02	-845.53
AIC	1,722.05	1,719.06	1,722.05	1,719.06

Coefficients with 95 percent confidence intervals in parenthesis. *** p less than 0.01, ** p less than 0.05, * p less than 0.1.

given our multiple intra-industry trade variables.

Even if plausible instruments could be found, their validity may always be called into question. In lieu of using instrumental variables, I follow Bandyopadhyay et al. (2018) and conduct a number of "placebo tests". The intuition behind these placebo tests is relatively straightforward. Our theoretical framework suggests that increases in the share of intra-industry trade leads to reductions in the propensity of coup attempts. Also, we argue that horizontal-IIT has a bigger pacifying effect on coups than vertical-IIT. One way to directly test the validity of these assertions is to randomly generate "placebo" data that represents the share of intra-industry trade and regress these against coup attempts. If our theoretical framework is correct, the placebo data should not have any consistent significant effect on coup attempts.

We generate our placebo data by reshuffling intra-industry data for each country. That is, we randomly reassign intra-industry trade data for each country-year observation in our sample. The results of this placebo test is presented in Table 3.3. Across all estimated models, our "false" setup of repositioning intra-industry trade shares for each country-year observation reveals no statistically significant effects on coup attempts. To ensure that the results of the placebo tests are not artifacts of any particular realization of the shuffling algorithm, we try two other reshuffles. The results of these additional placebo tests are presented in Appendix Table B.5 and Table B.6. Those results also show no significant effect. These tests thus support our presumed direction of causality and indicate that any potential endogeneity between coups and intra-industry trade is not much of a concern for our empirical analysis.

To further increase confidence in the results, we conduct two more tests. Recall that our causal logic is predicated on the fact that consumers and firms are likely to reduce support for coups as intra-industry trade increases because of the dire consequences of coup-induced political and economic instability. One way to directly test this is to examine the effect that increased intra-industry trade has on the participa-

Table 3.3: Intra-Industry Trade and Coups (Placebo Test 1)

	DV: Coup Attempts		DV: Coup Attempts	
	Logistic		Rare Events Logistic	
	Model 1	Model 2	Model 3	Model 4
IIT	0.25		0.28	
	(−0.84, 1.34)		(−0.81, 1.37)	
HIIT		−9.18		−8.10
		(−21.58, 3.21)		(−20.50, 4.29)
VIIT		−0.01		−0.000
		(−0.89, 0.86)		(−0.88, 0.88)
log(GDPpc)	−0.28***	−0.32***	−0.28***	−0.32***
	(−0.39, −0.18)	(−0.44, −0.21)	(−0.39, −0.17)	(−0.43, −0.21)
Pop.	−0.005**	−0.01**	−0.005**	−0.01**
	(−0.01, −0.001)	(−0.01, −0.001)	(−0.01, −0.000)	(−0.01, −0.001)
Polity	−0.08***	−0.07***	−0.08***	−0.07***
	(−0.10, −0.05)	(−0.10, −0.05)	(−0.10, −0.05)	(−0.10, −0.05)
Region Polity	0.000	0.01	0.000	0.01
	(−0.04, 0.04)	(−0.04, 0.05)	(−0.04, 0.04)	(−0.04, 0.05)
Armed Conflict	0.85***	0.81***	0.86***	0.82***
	(0.42, 1.28)	(0.37, 1.25)	(0.43, 1.28)	(0.37, 1.26)
Trade Opennes	0.13	0.16	0.15	0.18
	(−0.12, 0.39)	(−0.10, 0.41)	(−0.11, 0.41)	(−0.08, 0.43)
Coup Time	−0.18***	−0.19***	−0.18***	−0.18***
	(−0.25, −0.12)	(−0.26, −0.12)	(−0.24, −0.11)	(−0.25, −0.12)
Coup Time^2	0.01***	0.01***	0.01***	0.01***
	(0.003, 0.01)	(0.003, 0.01)	(0.003, 0.01)	(0.003, 0.01)
Coup Time^3	−0.000***	−0.000***	−0.000***	−0.000***
	(−0.000, −0.000)	(−0.000, −0.000)	(−0.000, −0.000)	(−0.000, −0.000)
Constant	0.65*	1.03**	1.05***	1.42***
	(−0.08, 1.39)	(0.06, 1.99)	(0.31, 1.79)	(0.46, 2.38)
N	4,960	4,616	4,960	4,616
Log Likelihood	−928.69	−859.53	−928.69	−859.53
AIC	1,879.37	1,743.05	1,879.37	1,743.05

Coefficients with 95 percent confidence intervals in parenthesis. *** p less than 0.01, ** p less than 0.05, * p less than 0.1.

tion of civil society in coup attempts. In other words, if our causal logic is correct, we should observe a decrease in the participation of members of civil society in the planning and execution of coup attempts as intra-industry trade increases. To test this, I rely on coup data from the Cline Center for Democracy (Nardulli et al. 2013). I create a dichotomous variable - *Civil-Backed Coups* - that is coded 1 (0 otherwise) for coups that involve the active participation of a) business leaders, b) organized labor activists, c) students or academics and d) ordinary citizens in the planning or execution of the coup attempt. I regress this variable on lagged intra-industry trade (and its horizontal and vertical components) along with a series of standard controls for coups. The results of this exercise are presented in Table 3.4.

The results align with those presented earlier - horizontal-IIT significantly reduces civil involvement while increased vertical-IIT has a slight positive effect although this does not rise to statistical significance (Models 2 and 4). Overall, increased intra-industry trade is associated with a decreased involvement of civil society in the planning and execution of coups, although this effect is not statistically significant (Models 1 and 3).

Our causal logic also suggests that as intra-industry trade increases, governments should have an increased incentive to actively avoid coups. Thus, another way to test our theoretical framework is to examine if increased intra-industry trade is correlated with government action to avoid coups. Since most coups originate from within the military establishment, government action towards the military may be a useful indicator in this regard. There is broad consensus in the coup literature that incumbents seek to "coup-proof" their regimes - by fractionalizing the military forces for instance - when faced with an elevated coup risk. Sudduth (2017) questions this consensus, arguing with supporting evidence that incumbents rather seek to downplay coup-proofing activity when faced with elevated coup risk since the very act of coup-proofing could itself trigger a coup. One such popular coup-proofing technique is

Table 3.4: Intra-Industry Trade and Civil-Backed Coups

	DV: Civil-Backed Coups		DV: Civil-Backed Coups	
	Logistic		Rare Events Logistic	
	Model 1	Model 2	Model 3	Model 4
IIT_{t-1}	−3.10		−2.81	
	(−7.51, 1.31)		(−7.22, 1.60)	
$HIIT_{t-1}$		−65.88**		−55.62*
		(−130.84, −0.93)		(−120.57, 9.34)
$VIIT_{t-1}$		0.31		0.38
		(−2.09, 2.71)		(−2.02, 2.78)
log(GDPpc)	0.07	0.10	0.06	0.09
	(−0.19, 0.32)	(−0.16, 0.36)	(−0.19, 0.32)	(−0.16, 0.35)
Pop.	0.001	0.001	0.002	0.002
	(−0.002, 0.004)	(−0.002, 0.004)	(−0.001, 0.005)	(−0.001, 0.005)
Polity	−0.07**	−0.06**	−0.07**	−0.07**
	(−0.13, −0.01)	(−0.12, −0.01)	(−0.13, −0.01)	(−0.12, −0.01)
Region Polity	0.18***	0.19***	0.18***	0.18***
	(0.09, 0.27)	(0.10, 0.28)	(0.09, 0.27)	(0.09, 0.27)
Armed Conflict	1.70***	1.70***	1.71***	1.70***
	(0.91, 2.48)	(0.91, 2.48)	(0.92, 2.49)	(0.92, 2.49)
Trade Opennes	−0.19	−0.18	−0.07	−0.05
	(−0.85, 0.47)	(−0.89, 0.52)	(−0.73, 0.59)	(−0.76, 0.65)
Coup Time	−0.25***	−0.25***	−0.24***	−0.24***
	(−0.38, −0.12)	(−0.38, −0.12)	(−0.37, −0.11)	(−0.37, −0.11)
Coup $Time^2$	0.01***	0.01***	0.01***	0.01***
	(0.003, 0.02)	(0.003, 0.02)	(0.002, 0.01)	(0.002, 0.01)
Coup $Time^3$	−0.000***	−0.000***	−0.000**	−0.000**
	(−0.000, −0.000)	(−0.000, −0.000)	(−0.000, −0.000)	(−0.000, −0.000)
Constant	−3.20***	−3.65**	−3.06***	−3.53**
	(−4.89, −1.51)	(−6.59, −0.70)	(−4.75, −1.37)	(−6.47, −0.58)
N	5,234	5,234	5,234	5,234
Log Likelihood	−269.63	−267.73	−269.63	−267.73
AIC	561.26	559.46	561.26	559.46

Coefficients with 95 percent confidence intervals in parenthesis. *** p less than 0.01, ** p less than 0.05, * p less than 0.1.

the creation of parallel military units that are autonomous from the command structures of the regular armed forces. These units are often tasked with the protection of the presidency, with the aim of insulating the incumbent from takeover attempts from the armed forces. This strategy also involves the creation of multiple layers of command within the security services with the aim of counterbalancing these units against threats from each other. The ultimate objective of these measures is to deter coup attempts by increasing the effort required to successfully organize one.

However, this approach is a double-edge sword as it could backfire and trigger a coup from a military force weary of being fractionalized. To avoid such coups, incumbents may thus seek to limit fractionalization activity. Finding that increased intra-industry trade is correlated with lower military fractionalization may indicate active government activity to avoid triggering a coup. To test whether there is any support in the data for this, I rely on military fractionalization data from Pilster and Bohmelt (2011). They create an index that captures the degree to which a state divides its military into rivaling organization in an attempt to coup-proof. This index incorporates information on the number of rivaling military organizations and their respective strengths. I regress this variable on lagged values of intra-industry trade and its components along with a series of controls. In addition to linear models I also estimate mixed-effects models to account for the effect of idiosyncratic time-invariant country-level confounders that may affect the propensity to fractionalize the military. The results, presented in Table 3.5, show that increased intra-industry trade is significantly associated with a reduced propensity to fractionalize the military. Increased horizontal and vertical-IIT are also significantly associated with less military fractionalization (although the effect for HIIT in model 4 is not significant). Taken together, these results provide robust support for our hypothesized effects.

Table 3.5: Intra-Industry Trade and Coup-Proofing

	DV: Military Fractionalization			
	Linear		Mixed-Effects	
	Model 1	Model 2	Model 3	Model 4
IIT_{t-1}	-0.85^{***}		-0.52^{***}	
	$(-1.13, -0.57)$		$(-0.89, -0.14)$	
$HIIT_{t-1}$		-7.38^{***}		-1.14
		$(-9.94, -4.83)$		$(-3.90, 1.62)$
$VIIT_{t-1}$		-0.58^{***}		-0.27^{***}
		$(-0.80, -0.36)$		$(-0.47, -0.07)$
log(GDPpc)	-0.03^{**}	-0.05^{***}	0.05^{***}	0.03^{*}
	$(-0.05, -0.01)$	$(-0.07, -0.03)$	$(0.02, 0.09)$	$(-0.005, 0.06)$
Pop.	0.001^{***}	0.001^{***}	0.002^{***}	0.002^{***}
	$(0.001, 0.001)$	$(0.001, 0.001)$	$(0.001, 0.003)$	$(0.001, 0.002)$
Polity	0.01^{***}	0.01^{***}	0.01^{***}	0.01^{***}
	$(0.002, 0.01)$	$(0.001, 0.01)$	$(0.01, 0.02)$	$(0.01, 0.02)$
Region Polity	0.01^{***}	0.01^{**}	0.004	0.003
	$(0.003, 0.02)$	$(0.002, 0.02)$	$(-0.004, 0.01)$	$(-0.005, 0.01)$
Armed Conflict	0.53^{***}	0.53^{***}	0.14^{***}	0.15^{***}
	$(0.43, 0.63)$	$(0.43, 0.63)$	$(0.05, 0.23)$	$(0.06, 0.24)$
Trade Opennes	0.07^{***}	0.03	0.07^{***}	0.06^{***}
	$(0.02, 0.11)$	$(-0.01, 0.08)$	$(0.03, 0.11)$	$(0.02, 0.10)$
Coup Time	0.002^{***}	0.002^{***}	0.004^{***}	0.003^{***}
	$(0.001, 0.004)$	$(0.001, 0.004)$	$(0.002, 0.01)$	$(0.001, 0.01)$
Constant	1.78^{***}	2.36^{***}	1.08^{***}	1.42^{***}
	$(1.63, 1.93)$	$(2.11, 2.60)$	$(0.84, 1.33)$	$(1.14, 1.71)$
N	2,784	2,784	2,784	2,784
Adjusted R^2	0.09	0.10		
Log Likelihood			$-1{,}626.37$	$-1{,}625.31$
Residual Std. Error	0.61	0.60		
F Statistic	36.95^{***}	35.83^{***}		
AIC			3,274.74	3,274.63
BIC			3,339.99	3,345.81

Coefficients with 95 percent confidence intervals in parenthesis. *** p less than 0.01, ** p less than 0.05, * p less than 0.1.

3.6 Conclusion

This paper makes the case that increased intra-industry trade is associated with reduced incidence of coups. I argue that intra-industry trade raises the opportunity cost of coups for consumers, domestic firms and the government, incentivizing them to limit support for coups and to pursue actions that keep coup propensity low. I test these propositions and find robust empirical support. The results also show the increases in horizontal-IIT has a bigger pacifying effect on coups than its vertical counterpart, possibly due to the differing firm-level effects of these trades.

The results have important implications for the literature on trade and domestic conflict. For one, it demonstrates that the composition of trade is an important determinant of any effect that trade might have on domestic conflict. Although previous research has established a connection between trade and domestic conflict, an account of how the composition of trade affects the nexus between trade and conflict has largely gone unexplored. This paper is among a recent emerging literature that aims to account for the diverging effects of trade when its composition is taken into account (e.g. Akoto et al. 2019; Manger 2012; Thies and Peterson 2015). The results presented here which suggest that it is (horizontal) intra-industry trade that is largely responsible for the peace-inducing effects of trade, illustrate that there is still much to discover about the trade-conflict nexus.

The results are also important for the coup literature. One enduring puzzle is why coups tend to be concentrated in Africa and Latin America as opposed to the West and other regions of the world. Previous research has tried to explain this puzzle by appealing to differences in the level of development, ethnic fractionalization, military professionalism etc. This paper offers trade composition as another possible explanatory factor. Intra-industry trade dominates the trade of western states, while the trade of African and Latin American states tend to be more inter-industry. The results presented here, which indicate that countries that have a higher proportion

of intra-industry trade are less likely to suffer coups, highlights trade composition as a possible overlooked factor in coup propensity. This is an important contribution to a newly emerging stream of the coup literature that explores the links between international commerce and coups (see e.g. Powell and Chacha 2016).

There is a potentially rich vein of scholarship on the link between trade and domestic conflict that opens up for future exploration. For one, our theoretical framework suggests that as IIT increases, business elites should pressure the government to adopt policies and practices that minimize the risk of coups. Future scholarship can explore whether these pressures go beyond coup minimization to other aspects of governance such as increased respect for human rights or stronger protection of property rights etc. Also, the global incidence of coups have seen a general and steady decline in the post-cold war era. This has coincided with a period of increasing intra-industry trade among the countries most prone to coups. Although the results here suggest a link between these two phenomena, there is opportunity for future scholars to explicitly test this.

Chapter 4

Trade Agreements and Coups

4.1 Introduction

Starting in the early 1990s, there has been a spike in the number of countries signing preferential trade agreements (PTAs). This has made PTAs one of the most important instruments of foreign economic policy-making for many governments around the world. This has ignited research aimed at examining the reasons for the increased popularity of PTAs.[1] Explanations abound but most revolve around political-economy imperatives like competition among trading nations, the effect of increased democratization, power of domestic veto players and electoral concerns (see. e.g. Allee and Elsig 2017; Hollyer and Rosendorff 2012; Maggi and Rodriguez-Clare 2007; Mansfield and Milner 2012).

In recent times, there has been increasing recognition that the motives for incumbents to engage in PTAs extend beyond the economic benefits of these arrangements. There are strong arguments in the literature that suggest PTAs serve strategic purposes as well, particularly for incumbents fearful of losing power (Liu and Ornelas 2014; Mansfield and Milner 2018; Rotunno 2016). One branch of this literature speaks to how PTAs can be particularly useful to leaders at risk of extra-legal challenges such as coups. For instance, PTAs can serve as a commitment device for incumbents who have come to power through coups. Such leaders are often regime outsiders, taking the coup route to power precisely because they cannot do so under the established

[1] Mansfield and Milner (1999) provide a useful review of the early literature on why states negotiate and sign PTAs. See Dür et al. (2014) for a useful summary of the recent literature.

legal routes (such as through popular elections, royal succession or election by party leadership etc.).

This upsets the established order and creates grievances among the incumbent, his supporters and previous regime elites that incentivize counter-coups and other challenges. This is exacerbated if there is uncertainty about the trade policy preferences of the incumbent as this can affect the future stability of benefits and other rents tied to trade policy that regime-elites enjoy. New coup leaders can reduce some of this uncertainty by committing to a set of trade policies under PTAs as a signal of their commitment to maintaining the benefits and privileges enjoyed by elites who supported the previous leader.

By committing to PTAs incumbent leaders can also effectively tie the hands of successor governments since withdrawal from PTAs can be reputationally and economically costly. This ensures that even out of power, the incumbent's policy preferences will endure. Importantly, because PTAs limit the rents that can be extracted from protectionist policies, incumbents can also use such agreements to reduce the risk of rent-seeking coups (Liu and Ornelas 2014).

Studies that examine the coup-proofing capabilities of PTAs have greatly broadened how we understand the political economy dynamics of trade agreements, particularly the effects of being party to one. However, the existing studies have one major shortcoming - the majority conceptualize preferential trade agreements dichotomously (i.e. whether a country is part of one or not) or use cumulative counts of the number of PTAs a country is party to. This implicitly assumes that preferential trade agreements are equal in their design, purpose and importantly, impact on the domestic economy. This is problematic because a careful examination of the logic of how PTAs affect coup propensity shows that any coup-proofing effect that PTAs have turn on questions of how and to what extent they impact the trade of the relevant country.

In this paper, I highlight this issue and make the case that beyond merely entering

into PTAs or even taking differences in their design into account, it is the impact of these agreements that determine their coup-proofing benefits. I also contend that existing arguments of how PTAs affect coups likely apply only to coups staged by regime outsiders. Examining reciprocal PTAs involving 152 countries concluded between 1962 and 2014, together with commodity level trade data, I show that the coup-proofing benefits of preferential trade agreements are only realized if the agreement has a meaningful impact on the country's trade. In addition, I show that these effects are expressed most strongly for coups staged by regime outsiders. These results are robust to a variety of controls, specifications and alternative explanatory mechanisms in the existing literature.

In the sections that follow, I start by discussing the link between preferential trade agreements and incumbent survival and then examine how the design of these agreements potentially influence the probability of coups in the member countries. I then propose a new theoretical framework that highlights how the coup-proofing benefits of trade agreements extend beyond merely entering these agreements or their design and purpose. I make the case that it is the impact of these agreements that generate the observed coup-proofing benefits. The analytical framework, results and conclusions then follow.

4.2 PTAs And Incumbent Survival

This study is most closely related to previous work that examines the effect of preferential trade agreements on democratic consolidation and leader survival (e.g. Hollyer and Rosendorff 2012; Liu and Ornelas 2014; Mansfield et al. 2002; Milner and Kubota 2005; Rotunno 2016). The focus of this literature has been on unpacking the reasons why democrats are particularly drawn to formal trade agreements. The key explanatory mechanism relies on institutional differences between democratic and autocratic regimes with the broad argument that democrats enter trade agreements

more frequently due to electoral accountability imperatives. That is, political leaders subject to electoral accountability enter into trade agreements to appease median voters instead of vested interests that favor protectionism.

Until recently, the effect of trade agreements on incumbent survival had largely gone unexamined. One of the earliest works to buck this trend is Hollyer and Rosendorff (2012) who examine the effect of trade agreements on the political survival of democratic incumbents. They argue that reductions in policy uncertainty stemming from accession to preferential trade agreements increase economic growth and boosts democratic political survival. Another example is Chang and Wu (2016). Basing their argument on the well-worn Heckscher-Ohlin (H-O) model of international trade and theories of inequality and regime transition, they argue that authoritarians sign preferential trade agreements as a way of consolidating their rule by amassing citizen support through trade gains.

The H-O model posits that comparative advantage stems from countries trading goods produced with their relatively abundant factor of production. Authoritarian countries tend to be labor rich so dictators have an incentive to join trade agreements that boost trade and cause an increase in demand for the labor required to produce the goods. As wages and workers' welfare rises, inequality is reduced, decreasing social discontent. The resultant political stability is good for the authoritarian as it prolongs their stay in office. Similarly, Baccini and Chow (2018) argue that the mode of entry into power is an important factor in determining whether incumbents enter into preferential trade agreements. Using a dyadic dataset of 120 autocracies over the period 1960 to 2014, they find that leaders who come to power through extra-legal means are more likely to enter into preferential trade agreements. These leaders are also more likely to sign agreements with strong enforcement mechanisms.

This surge in interest on how trade agreements affect incumbent survival has greatly broadened our knowledge on the political economy dynamics of trade agree-

ments. However, the existing studies have one major shortcoming - the majority conceptualize trade agreements as a dichotomous variable i.e. whether countries have entered a trade agreement or not. Others use a cumulative count of the number of trade agreements entered into by states. By doing this, these studies implicitly assume that all trade agreements are equal in purpose and effect. This is problematic because other scholars have shown that heterogeneity in the design and purpose of PTAs matter for outcomes such as democratic consolidation and political stability (e.g. Baccini and Chow 2018). I examine this branch of the literature as it relates to coups below.

4.2.1 How The Design of PTAs Matter for Coups

An emerging branch of the literature focuses on how preferential trade agreements can be exploited by incumbents at risk of removal to aid their political survival (e.g. Baccini and Chow 2018; Liu and Ornelas 2014; Rotunno 2016). The bulk of studies in this branch of the literature do well to avoid dichotomizing country participation in trade agreements. Many draw on the heterogeneous effects of the design and purpose of trade agreements in formulating arguments of how trade agreements affect incumbent survival. One line of argument proposes that trade agreements can serve as a commitment device for incumbents, particularly new leaders who have come to power through extra-legal means (such as palace revolts and coups). The assumption of power through coups necessarily involves the circumvention of conventional paths to power such as succession or elections. Such extralegal leaders often have a credibility problem because they cannot promise that the benefits and privileges enjoyed by elites who supported the previous leader will be maintained once they have consolidated power (Magaloni and Kricheli 2010). This is exacerbated if there is uncertainty about the trade policy preferences of the incumbent as this can affect the future stability of benefits and other rents tied to trade policy that regime-elites enjoy. This lack of

history between such leaders and their elite supporters is inimical to the formation of stable political support coalitions and provides a powerful incentive to plot against the new leader and depose him (Baccini and Chow 2018).

With this in mind, at risk incumbents can seek out PTAs they can leverage to aid their stay in power. For instance, some preferential trade agreements provide protection for adverse commodity price shocks for developing country exporters (Baccini and Chow 2018). This protection against price-induced market fluctuations give export elites a strong incentive to support leaders who sign such trade agreements. Many trade agreements also have exemption provisions, which allow incumbents to selectively protect certain import sectors from foreign competition. Using this provision to protect selected import-competing sectors serves as a costly signal to elite importers that they will continue to enjoy established privileges in the future and gives other importers an incentive to support the incumbent in the hopes of receiving this protection.

Trade agreements also provide an avenue for incumbents to clarify their trade policy preferences and to credibly commit to a set of tariffs and other measures. In contrast to unilateral liberalization, preferential trade agreements provide huge benefits through expanded market access for exporters and protection for importers through trade exemption clauses (Grossman and Helpman 1994). Most trade agreements also allow for lower tariffs on critical goods. With such agreements, goods are cheaper for consumers and more competitive in the marketplace. Such lower tariffs thus build greater support for at risk incumbents among consumers and the business community compared to the typically higher pre-agreement rates.

Trade agreements that liberalize government procurement provisions by granting national treatment to merchants from other member states can have a huge impact on increasing trade in goods and services between the members (Baccini et al. 2015). Such agreements allow merchants and service providers in one country to compete

for public contracts in member countries. Other provisions commit members to the adoption of international production standards for traded goods. For instance, in the South Korea-EU trade negotiations, EU negotiators persuaded their South Korean counterparts to end the practice of demanding that production cars conform to US standards in favor of the adoption of international standards (Elsig and Dupont 2012). Agreements with such provisions may be more difficult to withdraw from and so signal a greater commitment to the trade agreement for at risk incumbents (Baccini et al. 2015).

Moreover, by tying its hands through commitment to a set of policies under a preferential trade agreement, the incumbent reduces the incentive of domestic interest groups to lobby for increased tariffs on foreign made goods. For instance, free trade agreements typically provide reduced tariffs or tariff free access to foreign exporters, reducing the market share of domestic firms. This applies at any given tariff level. This means that any price increase resulting from an increase in external tariffs is not particularly valuable to domestic import-competing industries. This lowers their incentive to lobby for higher external tariffs and helps avoid distortions in domestic sectoral allocation of resources (Liu and Ornelas 2014). This potentially avoids wasteful use of resources. In this way, formal trade agreements moderate the role of political economy forces in determining tariff rates. This also generates fewer rents for the government and so is a costly signal of the incumbent's resolve to maintain liberal trade policies. This contributes to policy stability, reliability and transparency and helps reduce uncertainty in the broader economy. This can foster economic growth, which is correlated with lower coup incidents (Kim 2014).

Also, trade agreements not only commit the current but also future governments to the same set of trade policies. In this way, current incumbents can use preferential trade agreements to constrain the policy options available to future successors and ensure that even when they are replaced in office by political rivals, their policy

preferences will endure. Withdrawal from trade agreements for new coup leaders is fraught with challenges. For one, many trade agreements require countries to give advance notice of intention to withdraw, which can range from a several months to a year or two. Country participation in trade agreements also often has to go through national legislatures for ratification, the same for withdrawals. Even in the best of times, ratification of the withdrawal instrument can drag on for several months.

Trade agreements may also have built-in dispute resolution mechanisms that must be exhausted before withdrawal is permitted. So in all likelihood, any potential withdrawal will not be quick. Even if withdrawal were a quick affair, it is likely not in the interest of the incumbent to pursue that course of action. Domestic firms may have incurred significant sunk costs to orient their products and production plans to cater to the markets of partner countries. In such cases, withdrawal imposes significant costs on firms as they have to reorient their production and products towards other markets. This could put some firms out of business and lead to significant job losses in economically sensitive sectors. This can create grievances that can spur counter-coups.

Additionally, because trade agreements limit the rents that can be extracted from protectionist policies, incumbents at risk of rent-seeking coups can use such agreements as a coup-proofing device. Coup makers have an incentive to stage coups so long as the expected benefits of staging a coup (in terms of the rents that can be extracted from protectionist policies), are higher than the cost of a failed coup. Thus, the potential of PTAs to limit the ability of future governments to extract rents from protectionist policies potentially lowers coup-makers incentive to usurp power.

While providing useful insights, the bulk of this literature implicitly assumes that PTAs have a uniform impact on the trade of the countries involved. However, country heterogeneity means that even PTAs that have a similar design could have vastly different impacts in the partner countries. In the next section, I discuss how this is

important for the coup-proofing effects of preferential trade agreements.

4.3 Beyond Design - How PTA Impact Matters

As highlighted earlier, using dummies to capture the effect of PTAs is problematic in many cases. Analysis has therefore increasingly shifted towards using so-called "depth" measures to capture heterogeneity in the design and purpose of PTAs (e.g. Baccini and Chow 2018; Baccini et al. 2015; Dür et al. 2014). PTA "Depth" is commonly understood to mean the "extent to which an agreement constrains state behavior" (Baccini et al. 2015) or the "extent to which an agreement requires states to depart from what they would have done in its absence" (Downs et al. 1996). This conceptualization of depth is problematic because of the near impossibility of determining what states would have done in the absence of trade agreements. Regarding tariffs for instance, states may unilaterally lower them, raise them or keep them the same in the absence of a trade deal. There is no way to know for sure. This leaves arguments based on the depth of PTAs on shaky grounds.

In addition, the closeness with which operationalizations of the depth variable captures design and purpose heterogeneity is sometimes open to debate. For instance, Baccini and Chow (2018) use a latent variable constructed from a portmanteau of 48 dummies that capture the inclusion of various provisions in the design of PTAs, such as whether a PTA regulates foreign investments or liberalizes trade in services. It is debatable how closely this proxies what states would have done in the absence of the PTAs.

Depth measures also fall short in critical dimensions that are of particular relevance to the coup-proofing properties of PTAs. One important assumption made in analysis that rely solely on depth measures is that deep agreements liberalize trade more than so-called "shallow" ones which do not improve market access or include market-friendly policies that eliminate behind-the-border barriers for instance. This

may be true in most cases because an important determinant of PTA depth is the amount of tariff cuts states are required to make. Since deep agreements force bigger cuts, we would expect deep agreements to have a bigger impact than shallow ones (Baccini et al. 2015). However, PTAs also include a variety of flexibility provisions, which enable states to respond to domestic contingencies by selectively and unilaterally adjusting the terms of the PTA without violating the agreement. These include various legal opt-outs, exit options, renegotiation clauses, balance of payments exceptions and escape clauses.

Given the same set of flexibility provisions, some incumbents may use them more actively than others. This is completely missed by depth measures. These optional provisions therefore make depth measures inadequate and unsuitable for capturing the actual impact of PTAs on trade flows. This is important because the actual impact of PTAs on trade flows is critical to their coup-proofing capabilities. For instance, commitments under PTAs must be large enough to significantly move trade away from the status quo in order to be an effective tool at buying the support of import and export elites. Trivial increases in trade in the aftermath of the trade agreement is unlikely to adequately compensate export elites or sufficiently protect loyal import elites (Baccini and Chow 2018). Thus, for new coup incumbents aiming to build support among business elites and the business community, nothing short of a trade agreement that significantly increases trade will do.

Moreover, PTAs with the same objective level of depth may have vastly different distributional impacts depending on the practical effect of the agreement on the country's trade. With most agreements, exporters benefit because they gain improved access to foreign markets but import-competing interests are hurt due to potentially higher levels of foreign competition. At the same time, service providers may be completely unaffected by the agreement if it does not have specific provisions with regards to cross-border service trade. Also, the agreement may have vastly different

effects on various industries depending on how the incumbent uses flexibility clauses to shield industries from foreign competition. More importantly, these distributional consequences are critical for how the agreement affects coup propensity as it impacts where grievances against the incumbent are likely to emanate from.

It is also important to recognize that existing arguments for how PTAs affect coups likely apply only to particular types of coups. Specifically, we can expect that the "rent destruction" effect of PTAs have a much bigger impact on coups perpetrated by regime outsiders compared to those from within. This is because using PTAs as a credible commitment to regime insiders is only relevant to the extent that regime insiders are import and export entrepreneurs or have strong ties to the business community. It also depends on how much power and influence any such elites wield within the governing coalition.

The fraction of business elites within the government (if any) is likely to vary widely from country to country. Moreover, anecdotal evidence from countries where coups are often a problem leads us to suspect that the number of such elites, as a fraction of those with influence within the regime, is small (Farcau 1994). Regime elites in most coup-prone countries (those with repeated cycles of coups) are often ex-military officers or career politicians who have been in power for long periods. The authoritarian nature of many of these regimes also means they often govern without the broad support of the majority of the country, including the business community. We therefore expect that any effect that PTAs have on disincentivizing regime insider coups will be largely insignificant.

The coup-proofing powers of PTAs also partly rest on the extent to which coups within a particular country are driven by rent-seeking motives. In fact there is some uncertainty about how much of a role rent-seeking plays as a motive for coups. A key debate in the coup literature centers around this very issue i.e. whether coups are primarily driven by greed or grievances. Grievance based theories of coups assert

that putschists stage coups against the government because they harbor some resentment against the incumbent government. This is largely a reflection of the reasons often cited by successful putschists, who claim to stage coups reluctantly as a last ditch effort to correct various systemic socio-political and economic policy failings of the incumbent government. Essentially, they are "saviors", coming to "rescue" the situation (Deutsch 1969; Finer 1962; Huntington 2006).

Other scholars argue that underlying these grievances is a deep seated greed to capture the state and enjoy the benefits of sovereignty (Collier and Hoeffler 2006; Collier et al. 2007). The greed motive largely reflects the rents that can be extracted from state resources by the incumbent and his supporters. Expropriated foreign investments, oil and mineral exports and other rents are all fair game to those who wield power, particularly where institutions are weak. This serves as a powerful motive for state capture. Thus, we can expect that if preferential trade agreements have any dampening effect on coups, it will be expressed most strongly on coups by rent-seeking regime outsiders. In the empirical analysis, I am careful to capture these "outsider coups".

4.4 Analytical Framework

I aim to show that the coup-proofing benefits of preferential trade agreements extend beyond merely entering into PTAs or differences in their design and purpose. I propose that the coup-proofing benefits of preferential trade agreements are only realized if the agreement has a meaningful impact on the country's trade.[2]

We focus on reciprocal preferential trade agreements between two or more partners that have been notified to the World Trade Organization (WTO). These reciprocal PTAs make up over two-thirds of all PTAs and are useful for our analysis because

[2]It does not matter whether the country has a single or multiple trade agreements. The key factor for our theoretical argument is how these trade agreements actually impact the country's trade.

they exhibit significant variation across several important dimensions such as region, regime type and country developmental level.[3] Data on reciprocal PTAs come from the World Trade Organization (WTO 2018). The analytical time period of this study is 1962 - 2014, determined by data availability restrictions.

4.4.1 Measuring The Impact of PTAs

Measuring the impact of trade agreements on a country's trade is far from trivial. For one, most preferential trade agreements and the associated tariff levels relate to specific commodities. Commodity level differences in tariffs affect various industries differently and so are critically important to the overall impact of any agreement to a state's trade. A measure of the effect of trade agreements therefore needs to account for the different effects of trade agreements at the commodity level.

Another complication is that some agreements relate mainly to the imports of a country while others relate to its exports. For instance, the African Growth and Opportunity Act (AGOA) which covers a significant portion of trade between the US and several African countries mainly relaxes access to the US market for exports from these countries. This act is therefore likely to be felt in the export sectors of these countries. The measure of PTA impact should therefore capture the differing effects of trade agreements on the import and export sectors of member countries.

To develop a measure that fulfills these requirements, I employ trade data disaggregated to the commodity level using the Standard International Trade Classification level 5 (SITC-5), the most detailed level of disaggregation under the SITC convention. For each country, I sum the value of all imports for each commodity from each of its PTA partners. This gives us the total value of commodity imports from all the

[3]The vast majority of preferential trade agreements (about 60%) are reciprocal trade agreements that liberalize tariffs on selected goods traded between countries. A further 29% are partial agreements that marginally reduce tariffs on a subset of traded goods. 9% are customs unions and 1% are service agreements (Dür et al. 2014).

country's PTA partners. By using commodity level data, we are able to capture the commodity trade between the PTA partners and hence the commodity level impact of any tariff reductions and other provisions associated with PTAs. This is an important advantage since trade agreements often go beyond just tariff reductions.

We then express this as a fraction of the state's total imports. This allows us to account for the importance of trade with PTA partners in relation to the state's overall trade.[4] I repeat this for all the state's commodity exports to its PTA trade partners and express this as a share of total exports. We therefore have two impact measures - one for the state's imports and one for its exports. Thus:

$$\text{PTA Impact (Imports)} = \frac{\sum_{j=1}^{N}\left(\sum_{k=1}^{G} I_{kij}\right)}{I_{iw}} \tag{4.1}$$

and

$$\text{PTA Impact (Exports)} = \frac{\sum_{j=1}^{N}\left(\sum_{k=1}^{G} E_{kij}\right)}{E_{iw}} \tag{4.2}$$

Where i is the country of interest, j is its PTA partner, N is the number of PTA partners, k is the traded commodity, G is the number of commodities traded between i and j. I, E and w represent imports, exports and the world respectively. Trade data comes from UN COMTRADE (2018).

4.4.2 Measuring Coup Propensity

To construct our dependent variable, I draw on coup data from the Cline Center for Democracy's coup events dataset (Nardulli et al. 2013). Coups are defined as the "sudden and irregular (i.e. illegal or extra-legal) removal or displacement of the

[4]Liu and Ornelas (2014) also use a similar measure to capture the "intensity" of trade agreements, although it is not clear whether they use commodity level data.

executive authority of an independent government." The chief executive is any individual or group with command of the executive authority or government. This includes prime ministers, presidents, juntas etc. Recall that part of our argument is that PTAs matters most for coups staged by regime outsiders. Thus, I create a dichotomous variable - *outsider coups* - which is coded 1 (0 otherwise) for all coups staged by military actors who are not a formal part of the governing apparatus. This variable is also coded 1 for coups staged by organized, militarized rebel groups that are actively contesting government forces. This excludes coup staged by regime insiders (so-called palace coups), popular revolts and forced resignations initiated by regime insiders.

4.4.3 Controls

I include a variety of standard controls for coup analysis. For one, countries with poor economic indicators such as low GDP and low per capita income levels often have poorer social and development outcomes which are generally conducive to coups. To account for this, I include GDP per capita in the analytical models. Data on per capita income come from the World Bank's World Development Indicators database (WorldBank 2018). The number and frequency of coup attempts may also be driven by the type of regime in power. Prior studies show that non-democratic regimes tend to suffer a disproportionate amount of coups compared to relatively democratic ones (Marinov and Goemans 2014; Miller et al. 2016). To capture the effect of regime type, I use the Boix-Miller-Rosato (2013) democracy indicator. They code a dichotomous variable of democracy based on both electoral contestation and political participation. A regime is coded 1 for democracy (0 otherwise) where political leaders are chosen through free and fair elections and satisfy a threshold value of suffrage.

Previous research shows that coups are more likely during times of armed conflict (Gassebner et al. 2016; Powell 2012). To account for this, I include a variable that

captures the existence of domestic armed conflict. This variables is coded 1 for each year of armed conflict within a country. Data on armed conflict comes from the Center for Systemic Peace (Marshall 2017). Coup propensity has also been positively linked to the size of a country's population - more populous countries tend to high a higher incidence of coups (Gassebner et al. 2016; Wells 1974). To account for this, I include a control for the size of a country's population. Population data is taken from the World Banks' World Development Indicators (WorldBank 2018). Coups also become less likely with time, possibly as a result of changing global trends (Gassebner et al. 2016). To account for this duration dependence, I include the number of years since the last coup attempt and its squared and cubed versions (Beck et al. 1998). Appendix Table C.1 has descriptive statistics for selected variables.

4.4.4 Analysis

I use panel logistic regression models to estimate the effect of PTAs on coup attempts. This serves as our baseline model. However, countries have unique configurations of domestic factors that likely affect coup propensity. Some countries like Thailand have a long history of military involvement in the political affairs of the state. The military there is often expected to intervene with coups (Myre 2014). On the other hand, other militaries may have a strong tradition of non-involvement in civilian political affairs despite the existence of all the typical risk factors for coups. It is hard to capture these underlying country-specific tendencies towards coups with any one control. Moreover, the time series-cross sectional structure of the data means that country observations across time are likely interdependent. Thus, to account for these interdependencies and to capture country-level omitted variables, I also estimate mixed-effects models that include country fixed and random effects. The fixed effects help account for time-invariant country-specific idiosyncratic factors that affect coup propensity whilst the random effects control for different country propensities towards coups.

4.5 Results

We begin by testing whether mere membership of trade agreements have a significant effect on dampening propensity for coups. The only empirical evidence we currently have to support this proposition comes from studies that test whether a heightened risk of coups is correlated with higher rates of participation in preferential trade agreements. These studies do find evidence that suggest this is indeed the case (see e.g. Baccini and Chow (2018) and Chow and Kono (2017)). However, no study has as yet explicitly tested whether this logic works in practice i.e. whether joining trade agreements actually works to decrease coup propensity. To test this proposition, I create a dichotomous variable - *PTA Membership* - coded 1 (0 otherwise) if a country is involved in at least one reciprocal preferential trade agreement in a given year. PTA membership data comes from the World Trade Organization (2018).

I also examine the effect of PTA depth on coup propensity. For the depth measure, I adopt one commonly used in the literature. This variable comes from Dür et al. (2014) who produce an additive index that combines seven key provisions that can be included in PTAs. These provisions capture whether or not agreements include only tariff reductions, whether there are provisions on service trade, investments and public procurement among others. They then sum the dummy values (0/1) of these provisions to arrive at a total out of 7.[5] This variable captures the depth of new PTAs signed by a country.[6]

The results are in Table 4.1. Unless indicated otherwise, in this and subsequent tables, Models 1 and 2 are the baseline logistic models while Models 3 and 4 are the mixed-effects estimations. Model 1 confirms the conventional logic - PTA membership

[5]Dür et al. (2014) also create a different version of this index using latent trait analysis on a total of 48 variables that capture various aspects of trade agreements. This latent variable is highly correlated with the additive one used here (r=0.9).

[6]For countries with multiple PTAs, we calculate the mean depth in the year of singing any new agreement.

Table 4.1: Effect of PTA Membership And Depth on Coups

	Outsider Coups			
	Logistic		Mixed-Effects	
	Model 1	Model 2	Model 3	Model 4
PTA Membership	−0.13		−0.10	
	(−0.31, 0.06)		(−0.29, 0.08)	
Number of PTAs		−0.21		−0.06
		(−0.61, 0.19)		(−0.51, 0.40)
PTA Depth	0.01	−0.01	0.01	0.01
	(−0.12, 0.13)	(−0.14, 0.12)	(−0.11, 0.14)	(−0.12, 0.13)
log(GDPpc)	−0.35***	−0.37***	−0.40***	−0.42***
	(−0.48, −0.23)	(−0.49, −0.24)	(−0.56, −0.25)	(−0.57, −0.26)
Pop.	−0.004*	−0.004*	−0.004	−0.004
	(−0.01, 0.000)	(−0.01, 0.000)	(−0.01, 0.002)	(−0.01, 0.002)
Democracy	−0.51***	−0.52***	−0.75***	−0.76***
	(−0.87, −0.16)	(−0.87, −0.17)	(−1.14, −0.36)	(−1.14, −0.37)
Armed Conflict	0.44*	0.44*	0.53*	0.53*
	(−0.07, 0.95)	(−0.07, 0.95)	(−0.07, 1.13)	(−0.07, 1.13)
Coup Time	−0.20***	−0.20***	−0.15***	−0.15***
	(−0.28, −0.13)	(−0.28, −0.13)	(−0.23, −0.07)	(−0.23, −0.07)
Coup Time^2	0.01***	0.01***	0.01***	0.01***
	(0.003, 0.01)	(0.003, 0.01)	(0.002, 0.01)	(0.002, 0.01)
Coup Time^3	−0.000***	−0.000***	−0.000***	−0.000***
	(−0.000, −0.000)	(−0.000, −0.000)	(−0.000, −0.000)	(−0.000, −0.000)
Constant	1.24***	1.33***	1.10**	1.16**
	(0.44, 2.04)	(0.52, 2.14)	(0.09, 2.12)	(0.13, 2.19)
N	5,188	5,188	5,188	5,188
Log Likelihood	−778.29	−778.76	−764.65	−765.27
AIC	1,576.57	1,577.52	1,551.30	1,552.54
BIC			1,623.39	1,624.63

Coefficients with 95 percent confidence intervals in parenthesis. *** p less than 0.01, ** p less than 0.05, * p less than 0.1.

does indeed reduce coup propensity. However, the magnitude of this effect is reduced when we account for country fixed and random effects in model 3. As an alternate operationalization, I create a variable - *Number of PTAs* - that capture the number of new trade agreements signed by a country in a given year. This is based on data from Dür et al. (2014). In models 2 and 4, we replace the PTA membership dummy with this variable. Compared to model 1, model 2 indicates a much bigger negative effect of PTAs on coup propensity. Model 4 confirms this negative effect although the magnitude is smaller compared to model 3. Importantly, none of the

estimated coefficients rise to conventional levels of significance. What this tells us is that although entering preferential trade agreements do reduce coup propensity, these effects are not significant. The effect of PTA depth is mixed, varying by model. Model 2 comports with the conventionally expected negative effect on coup propensity whereas models 1, 3 and 4 all show a positive effect. Positive or negative, the results show that PTA depth is not a significant determinant of coup propensity for countries entering trade agreements.

Next, I introduce PTA impact into the models. The results are in Table 4.2. Models 1 and 3 show that PTA impact on imports has a significant negative effect on coup propensity (accounting for the effect of PTA membership, the number of new trade agreements and the design of these agreements). In models 2 and 4, we replace PTA import impact with PTA export impact. The results are similar to those in models 1 and 3 - export impact significantly decreases coup propensity (these effects are comparatively larger than those for import impact). It is interesting to note that in all estimated models, the absolute magnitudes of PTA impact is significantly higher than the effect of membership, design or number of PTAs. These results thus confirm our theoretical expectations - the impact of preferential trade agreements on a country's trade is important to any coup-proofing effect that these agreements have. More importantly, because we simultaneously account for PTA membership, number and design, the results confirm that *it is* PTA impact that is actually responsible for the bulk of the observed coup-proofing power of trade agreements.

In Appendix Table C.2, we lag PTA export and import impact by one period to test if the effects of PTA impact extend beyond the current period. This is indeed the case. Both PTA export and import impact significantly reduce coup propensity in the next period, although the magnitude of this effect is slightly less than its contemporaneous effect. Again, we control for PTA membership, number and design, all of which continue to have insignificant effects on coup propensity.

Table 4.2: Effect of PTA Impact on Coups

	Outsider Coups			
	Logistic		Mixed-Effects	
	Model 1	Model 2	Model 3	Model 4
PTA Impact (Imports)	-1.88^{***}		-1.61^{**}	
	$(-3.11, -0.64)$		$(-2.91, -0.31)$	
PTA Impact (Exports)		-1.93^{***}		-1.79^{***}
		$(-3.08, -0.79)$		$(-2.98, -0.60)$
PTA Membership	-0.07	0.04	0.03	0.14
	$(-0.48, 0.35)$	$(-0.38, 0.46)$	$(-0.43, 0.50)$	$(-0.33, 0.62)$
Number of PTAs	-0.10	-0.11	-0.08	-0.09
	$(-0.28, 0.08)$	$(-0.30, 0.07)$	$(-0.27, 0.10)$	$(-0.28, 0.09)$
PTA Depth	0.04	0.02	0.04	0.03
	$(-0.09, 0.17)$	$(-0.11, 0.15)$	$(-0.09, 0.17)$	$(-0.10, 0.16)$
log(GDPpc)	-0.30^{***}	-0.30^{***}	-0.34^{***}	-0.34^{***}
	$(-0.43, -0.17)$	$(-0.43, -0.18)$	$(-0.50, -0.18)$	$(-0.50, -0.18)$
Pop.	-0.005^{**}	-0.005^{**}	-0.004	-0.004
	$(-0.01, -0.000)$	$(-0.01, -0.000)$	$(-0.01, 0.002)$	$(-0.01, 0.002)$
Democracy	-0.47^{***}	-0.48^{***}	-0.68^{***}	-0.70^{***}
	$(-0.82, -0.12)$	$(-0.83, -0.13)$	$(-1.07, -0.30)$	$(-1.08, -0.32)$
Armed Conflict	0.43^{*}	0.43^{*}	0.49	0.47
	$(-0.08, 0.94)$	$(-0.08, 0.95)$	$(-0.11, 1.09)$	$(-0.12, 1.07)$
Coup Time	-0.19^{***}	-0.19^{***}	-0.14^{***}	-0.15^{***}
	$(-0.27, -0.11)$	$(-0.27, -0.11)$	$(-0.22, -0.06)$	$(-0.22, -0.07)$
Coup Time^2	0.01^{***}	0.01^{***}	0.01^{**}	0.01^{**}
	(0.003, 0.01)	(0.003, 0.01)	(0.001, 0.01)	(0.001, 0.01)
Coup Time^3	-0.000^{***}	-0.000^{***}	-0.000^{**}	-0.000^{**}
	$(-0.000, -0.000)$	$(-0.000, -0.000)$	$(-0.000, -0.000)$	$(-0.000, -0.000)$
Constant	0.97^{**}	0.99^{**}	0.75	0.76
	(0.14, 1.80)	(0.17, 1.81)	$(-0.31, 1.80)$	$(-0.28, 1.80)$
N	5,188	5,188	5,188	5,188
Log Likelihood	-772.12	-770.27	-761.16	-759.12
AIC	1,568.25	1,564.54	1,548.32	1,544.24
BIC			1,633.52	1,629.44

Coefficients with 95 percent confidence intervals in parenthesis. *** p less than 0.01, ** p less than 0.05, * p less than 0.1.

One issue we must address is the potentially endogenous relationship between preferential trade agreements and coup propensity. The results here show that trade agreements do reduce coup propensity but it has also been shown elsewhere that the probability of a coup significantly influences whether countries sign trade agreements or not (e.g. Baccini and Chow 2018). The logic of how coup risk motivates incumbents to join trade agreements (as discussed earlier) is relatively straightforward but it is less clear how coup risk determines the impact of trade agreements.[7] So while it is plausible that coup risk affects PTA membership it is less clear whether it has any meaningful effect on the impact of PTAs. But, however unlikely it is that coups affect PTA impact, we cannot rule out a significant effect and so we must explicitly test for it.

Appendix Table C.3 presents the results of this test. Models 1 and 2 test the effect of coups on PTA imports while models 3 and 4 relate to exports. Model 1 and 3 are linear models whereas models 2 and 4 represent mixed-effects estimations. All the estimated models show that coups have a very small negative effect (-0.01 in most cases) on PTA impact. Important for our purposes, none of these effects rise to conventional levels of significance. This gives us some confidence that the effect of any endogeneity bias on our earlier results is very small. To further increase confidence in our results, I estimate additional models that further buttress our proposed causal mechanism. Recall that we argue that PTA impact should not matter for coups staged by regime insiders. That is, if our proposed logic is correct, PTA impact should significantly affect "outsider coups" (which we have shown to be the case) but have no significant effect on "insider coups". I explicitly test this provision and present the results in Table 4.3.

[7]The impact of trade agreements depend on a host of factors including the specific provisions contained within agreements, which sectors and commodities are affected and previous trade levels between partners. It is unclear whether all relevant factors are directly affected by coup risk and if so, the exact mechanisms at play.

I code a new dichotomous variable - *Insider Coups* - based on data from the Cline Center for Democracy's coup events dataset (Nardulli et al. 2013). This variable is coded 1 (0 otherwise) for coups executed by a faction within the existing government or cases of so-called "soft coups" where the chief executive is forced to step down from his position under the threat of extra-legal removal. A recent example of such a soft coup is the Zimbabwean coup of 2017 that deposed Robert Mugabe. The results presented in Table 4.3 show that import impact has a negative effect on insider coups but this effect is insignificant at conventional levels. This is true across both the baseline logistic model and the mixed-effects model. Similarly, export impact has an insignificant negative effect on insider coups across both estimations. This increases confidence that the proposed theoretical logic enjoys support in the empirical data. Together with the results in Appendix Table C.3, this increases confidence in our results and suggest that the potential endogeneity of coups and trade agreements is not much of a concern for our analysis.

We also need to address alternate mechanisms in the existing literature that could potentially explain our results. Countries that are members of the World Trade Organization and its predecessor trade arrangements are often beneficiaries of preferential tariffs on imports and exports. This affects the decision of firms in terms of which commodities to produce, where to do the production and where to export (Bagwell and Staiger 2004b). This is potentially correlated with changes in PTA impact. Moreover, the conclusion of trade agreements requires concerted and cooperative efforts from the parties involved in terms of reaching agreements relating to tariff levels and associated regulations. These negotiations are often facilitated by the WTO.

Also, Bagwell and Staiger (2004a) highlight the historically asymmetric treatment of developed and developing countries under the General Agreement on Trade and Tariffs (GATT). Developing countries were historically exempted from making reciprocal tariff concessions under the GATT but this changed with the conclusion of the

Table 4.3: Effect of PTA Impact on Insider Coups

	Insider Coups			
	Logistic		Mixed-Effects	
	Model 1	Model 2	Model 3	Model 4
PTA Impact (Imports)	−1.49		−1.45	
	(−3.52, 0.53)		(−3.55, 0.64)	
PTA Impact (Exports)		−0.93		−0.85
		(−2.57, 0.71)		(−2.57, 0.87)
PTA Membership	−0.25	−0.23	−0.15	−0.13
	(−0.98, 0.48)	(−0.97, 0.51)	(−0.94, 0.63)	(−0.93, 0.66)
Number of PTAs	−0.32	−0.34*	−0.32	−0.33
	(−0.71, 0.07)	(−0.73, 0.05)	(−0.71, 0.08)	(−0.73, 0.06)
PTA Depth	−0.14	−0.15	−0.14	−0.15
	(−0.44, 0.16)	(−0.46, 0.15)	(−0.44, 0.17)	(−0.45, 0.15)
log(GDPpc)	−0.30***	−0.32***	−0.33***	−0.35***
	(−0.51, −0.09)	(−0.53, −0.10)	(−0.57, −0.09)	(−0.59, −0.11)
Pop.	−0.002	−0.002	−0.002	−0.002
	(−0.01, 0.003)	(−0.01, 0.003)	(−0.01, 0.004)	(−0.01, 0.004)
Democracy	−0.64**	−0.66**	−0.66**	−0.68**
	(−1.27, −0.01)	(−1.29, −0.03)	(−1.32, −0.001)	(−1.34, −0.02)
Armed Conflict	0.21	0.22	0.26	0.27
	(−0.65, 1.07)	(−0.65, 1.08)	(−0.69, 1.22)	(−0.68, 1.23)
Coup Time	−0.13**	−0.13**	−0.08	−0.09
	(−0.24, −0.02)	(−0.25, −0.02)	(−0.20, 0.03)	(−0.20, 0.03)
Coup Time^2	0.004	0.005*	0.003	0.003
	(−0.001, 0.01)	(−0.001, 0.01)	(−0.003, 0.01)	(−0.002, 0.01)
Coup Time^3	−0.000	−0.000	−0.000	−0.000
	(−0.000, 0.000)	(−0.000, 0.000)	(−0.000, 0.000)	(−0.000, 0.000)
Constant	−0.51	−0.41	−0.79	−0.65
	(−1.87, 0.84)	(−1.76, 0.93)	(−2.36, 0.78)	(−2.20, 0.90)
N	5,188	5,188	5,188	5,188
Log Likelihood	−344.67	−345.24	−339.08	−339.64
AIC	713.35	714.47	704.17	705.27
BIC			789.37	790.48

Coefficients with 95 percent confidence intervals in parenthesis. *** p less than 0.01, ** p less than 0.05, * p less than 0.1.

Uruguay round which lasted from 1986 to 1994. Since then, liberalization requirements at accession has become much more stringent. This difference in accession requirements could mean that WTO membership in the pre-1990 period has a different effect on a country's trade compared to WTO membership post 1990. To account for these effects, I include dichotomous variables coded 1 for WTO membership prior to 1990 (*WTOpre90*) and WTO membership in the post 1990 period (*WTOpost90*). Data on WTO membership comes from the CEPII Trade Dataset (Mayer and Zignago 2011).

Incumbents at risk of a coup may also actively seek out closer ties with the international community in order to signal their legitimacy and international acceptance (Pevehouse 2005). Such incumbents may be particularly amenable to PTAs with deep concessions in terms of tariff rates and other provisions (Baccini and Chow 2018). This is potentially correlated with changes in PTA impact. Incumbents may also seek greater international engagements in the hopes that this will increase the probability of international condemnation following a coup attempt. This could disincentivize coup attempts. To account for this "internationalization effect", I include a count of the number of international organizations (IO) that a country is a member of. Data on IO membership comes from the Correlates of War International Governmental Organizations Dataset (Pevehouse et al. 2004).

It is also possible that our results may be driven by a few countries that tend to experience the bulk of coups, such as those from Africa. There was a steady decrease in the incidence of coups among African countries starting in the 1990s just when these countries became more involved in various preferential trade agreements. Do these countries perhaps account for the bulk of the observed effects? To account for this potential "African effect", I include a dummy coded 1 for African countries in the sample.

Another potential omitted variable that may be correlated with our measure of

Table 4.4: Effect of PTA Impact on Coups - Alternate Mechanisms

	Outsider Coups			
	Logistic		Mixed-Effects	
	Model 1	Model 2	Model 3	Model 4
PTA Impact (Imports)	-1.58^{**}		-1.27^{*}	
	$(-2.86, -0.31)$		$(-2.64, 0.10)$	
PTA Impact (Exports)		-1.78^{***}		-1.56^{**}
		$(-2.95, -0.62)$		$(-2.79, -0.32)$
PTA Member	-0.11	-0.001	0.001	0.10
	$(-0.54, 0.32)$	$(-0.44, 0.44)$	$(-0.48, 0.48)$	$(-0.39, 0.58)$
Number of PTAs	-0.16	-0.16	-0.15	-0.15
	$(-0.36, 0.04)$	$(-0.36, 0.03)$	$(-0.34, 0.05)$	$(-0.35, 0.05)$
PTA Depth	0.04	0.04	0.05	0.04
	$(-0.10, 0.19)$	$(-0.11, 0.18)$	$(-0.10, 0.19)$	$(-0.10, 0.19)$
log(GDPpc)	-0.31^{**}	-0.29^{**}	-0.27^{*}	-0.25^{*}
	$(-0.55, -0.06)$	$(-0.53, -0.05)$	$(-0.56, 0.03)$	$(-0.54, 0.04)$
Pop.	-0.004	-0.004	-0.003	-0.002
	$(-0.01, 0.003)$	$(-0.01, 0.003)$	$(-0.01, 0.004)$	$(-0.01, 0.004)$
Democracy	-0.56^{***}	-0.58^{***}	-0.75^{***}	-0.77^{***}
	$(-0.95, -0.17)$	$(-0.97, -0.19)$	$(-1.18, -0.33)$	$(-1.19, -0.34)$
Armed Conflict	0.32	0.31	0.39	0.36
	$(-0.20, 0.85)$	$(-0.21, 0.83)$	$(-0.23, 1.01)$	$(-0.26, 0.99)$
log(Trade)	-0.06	-0.09	-0.08	-0.11
	$(-0.21, 0.09)$	$(-0.23, 0.06)$	$(-0.26, 0.10)$	$(-0.29, 0.07)$
WTO_{pre90}	-0.05	-0.07	0.002	-0.02
	$(-0.38, 0.28)$	$(-0.40, 0.26)$	$(-0.43, 0.44)$	$(-0.45, 0.41)$
WTO_{post90}	-0.47^{*}	-0.56^{**}	-0.35	-0.43
	$(-0.99, 0.06)$	$(-1.08, -0.04)$	$(-0.97, 0.28)$	$(-1.05, 0.19)$
Num IOs	0.02^{***}	0.02^{***}	0.02^{**}	0.02^{**}
	(0.01, 0.04)	(0.01, 0.04)	(0.000, 0.04)	(0.002, 0.04)
African	-0.01	-0.06	0.06	-0.005
	$(-0.39, 0.37)$	$(-0.45, 0.32)$	$(-0.46, 0.58)$	$(-0.53, 0.52)$
Oil Prod.	-0.00	-0.00	-0.00	-0.00
	$(-0.00, 0.00)$	$(-0.00, 0.00)$	$(-0.00, 0.00)$	$(-0.00, 0.00)$
Coup Time	-0.16^{***}	-0.16^{***}	-0.12^{***}	-0.11^{***}
	$(-0.24, -0.08)$	$(-0.24, -0.08)$	$(-0.20, -0.03)$	$(-0.20, -0.03)$
Coup Time^2	0.01^{**}	0.01^{**}	0.004^{*}	0.004^{*}
	(0.001, 0.01)	(0.001, 0.01)	$(-0.000, 0.01)$	$(-0.000, 0.01)$
Coup Time^3	-0.000^{**}	-0.000^{**}	-0.000^{*}	-0.000^{*}
	$(-0.000, -0.000)$	$(-0.000, -0.000)$	$(-0.000, 0.000)$	$(-0.000, 0.000)$
Constant	1.36	1.69	1.12	1.47
	$(-0.78, 3.49)$	$(-0.43, 3.80)$	$(-1.54, 3.78)$	$(-1.16, 4.11)$
N	3,878	3,878	3,878	3,878
Log Likelihood	-703.21	-700.95	-692.99	-691.22
AIC	1,442.42	1,437.90	1,423.98	1,420.44
BIC			1,542.98	1,539.44

Coefficients with 95 percent confidence intervals in parenthesis. *** p less than 0.01, ** p less than 0.05, * p less than 0.1.

PTA impact is the natural resource wealth of a country. In many countries, ownership of natural resources are often concentrated in the hands of a few politically powerful individuals who benefit greatly from international trade. Such individuals may push for more intense PTAs. We include the value of oil production as a proxy for natural resource wealth. Data on oil production comes from Ross and Mahdavi (2015). Finally, I include the natural log of total trade, as an increase in overall trade likely boosts the apparent impact of previously concluded PTAs.

The results are presented in Table 4.4. The effect of import impact remains negative and significant in the face of these alternate explanatory mechanisms although the magnitude of its effect is slightly reduced from those presented in Table 4.2. Similarly, the effect of export impact remains negative and significant in both estimations. Overall, the results of the empirical analysis support our theoretical propositions - beyond mere membership in preferential trade agreements or design differences, it is the actual impact of trade agreements on a country's trade that matters for its coup propensity. Moreover, this effect is particularly relevant for coups staged by regime outsiders.

4.6 Conclusion

The main proposition of this paper is that it is the impact of trade agreements that matter for the coup-proofing capability of such agreements. This is important because until now, the coup-proofing capabilities of preferential trade agreements have been ascribed to merely partaking in trade agreements or the number of such arrangements that a state is part of. The work presented here shows that this is may be misguided. This has important implications for the existing literature on the link between preferential trade agreements and incumbent survival. For one, it shows that accounting for PTA design heterogeneity is not enough to isolate all the potential effects of these agreements, particularly their coup-proofing capabilities. We need to

go beyond design considerations and examine the actual impact of these agreements.

Beyond this, the work presented here opens up potentially rich research avenues that explore how responsive domestic suppliers of political violence (such as coup makers, rebel leaders and the like) are to changes in a state's trade policy. Current research on the link between domestic political violence and a state's foreign policies mainly rely on audience costs, special interest group politics or public opinion as the primary explanatory mechanisms. This paper suggests a different pathway between domestic violence and foreign policy - the sensitivity of violence purveyors to trade policy changes.

Future research could explore if PTA impact has similar effects on other forms of domestic violence such as rebellions, insurgencies and terrorist activity. It would be particularly interesting to explore if other possible operationalizations of PTA impact such as the number of commodities covered by trade agreements or percentage growth in PTA trade or growth in PTA trade relative to growth in non-PTA trade have the same pacifying effect on coups and other forms of domestic conflict.

Chapter 5

Conclusion

In this dissertation, I address three key questions about the nature of the relationship between coups and international trade. First, I examine whether all coup attempts, regardless of outcome, have the same effect on international trade. I also analyze how elevated coup risk affects international trade. I demonstrate that while failed coups and increased coup risk negatively impact bilateral trade, the effect of successful coups is mixed, depending on the post-coup policies and actions of the new leaders. Disaggregating trade along its intensive and extensive margins, I also show that coups and increased coup risk largely influence bilateral trade through their impact on the extensive margin of trade.

Second, I examine how the changing composition of international trade affects coup propensity. I show that increased intra-industry trade is associated with a reduction in the incidence of coups. I link this to reduced support for coups among consumers and firms and anti-coup action taken by governments as intra-industry trade increases. I also show that horizontal intra-industry trade has a bigger pacifying effect on coups compared to its vertical counterpart, due to the differing firm-level effects of these trades.

Thirdly, I analyze the links between trade agreements and the survival of incumbents at risk of coups. I demonstrate that contrary to assertions in the existing literature, it is the impact of trade agreements that matter for the coup-proofing capability of such agreements. I also show that these effects are expressed most strongly for coups staged by regime outsiders.

The dissertation makes several contributions to the coup-trade literature. It is the first to demonstrate that successful and failed coups can have very different impacts on the trade of the coup state and that these effects can be countervailing along the intensive and extensive margins of trade. This challenges existing assumptions in the literature that treat coup attempts homogeneously. It also demonstrates for the first time that increased risk of coups dampen trade along both the intensive and extensive margins of trade. This is important for domestic policy makers because it highlights the importance of managing firm-level perceptions of coup risk.

The dissertation also demonstrates that the link between coups and international trade is predicated on the composition of trade. This potentially sheds important light on why coups tend to be concentrated among countries that only export a few primary commodities. I also show that it is the impact of trade agreements that matter for any coup-proofing effects that these agreements may have, challenging existing assertions in the literature that link mere membership of trade agreements to leader survival. By demonstrating that increased intra-industry trade affects firm support for coups, this dissertation also contributes to the nascent and burgeoning literature on how international trade in similar commodities affects the domestic political behavior of firms and whole industries.

This dissertation opens up several potentially rich research avenues. For one, the work presented here demonstrates that the composition of a state's trade is an important factor in determining how disruptive a coup is to its trade relations. This suggests that we cannot predict with any meaningful degree of certainty the effect that coups have on trade flows without due regard to the composition of that trade. Given the similarity of the causes of coups with other forms of domestic conflict, future scholars can test whether this extends to other forms of political violence as well such as rebellions and insurgencies.

Moreover, the results suggest that as emerging economies continue to develop

and the fraction of their intra-industry trade increases, we should expect that coups become increasingly disruptive for both domestic and international business interests. This means that we should observe fewer support and collaboration for coups from foreign trade partners. Also, the global incidence of coups has seen a general and steady decline in the post-cold war era. This has coincided with a period of increasing intra-industry trade among the countries most prone to coups. The work presented here suggests a link between these two phenomena. Opportunity remains for future scholars to explicitly test these propositions.

The work presented here also opens new avenues of research into the political economy of intra-industry trade as it relates to the political activity of domestic firms. The results suggest that intra-industry trade alters the competitive pressures that firms face, making them more sensitive to the probability of trade-disrupting domestic violence. This may incentivize firms to increase their domestic political activity such as increasing campaign contributions or lobbying activity. Future scholars could explore the political economy consequences of this increased firm-level political activity.

Future research could also explore what determines post-coup trade policy. New coup leaders are particularly vulnerable to counter-coups and popular revolts. This vulnerability may motivate these leaders to build support among the public and business interests by offering lower trade tariffs. Future scholars could explore how trade interacts with the increased vulnerability to coups to determine post-coup trade policies of new coup leaders. Future research could also explore whether such coup-induced trade policies are durable or get reversed once the incumbent has consolidated power. This will provide valuable new insights on variation in post-coup trade policy, an issue which has received no attention in the existing literature.

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Appendix A

International Trade In The Shadow of Coups

A.1 Additional Tables

Table A.1: Descriptive Statistics

Statistic	N	Mean	St. Dev.	Min	Pctl(25)	Pctl(75)	Max
Exports (millions US$)	657,060	280	2,728	1	0.051	21	301,638
Coup Risk	657,060	−0.238	0.806	−1.404	−1.293	0.406	2.287
Coup Success	657,060	0.013	0.112	0	0	0	1
Coup Failure	657,060	0.011	0.107	0	0	0	1
GDP_o (Billion US$)	657,060	364	1,391	0.008	5.7	169	18,036
GDP_d (Billion US$)	657,060	483	1,598	0.049	8.6	257	18,036
WTO_o	657,060	0.781	0.414	0	1	1	1
WTO_d	657,060	0.831	0.375	0	1	1	1
PTA_{odt}	657,060	0.098	0.297	0	0	0	1
Distance (Thousands Km)	657,060	7,356	4,403	22	3,795	10,252	19,735
MR_o (Millions)	657,060	1,628	10,177	1	48	848	494,428
MR_d (Millions)	657,060	732	1,790	2	44	657	32,927
$\log(GDP)_o$	657,060	24.117	2.387	15.993	22.461	25.858	30.523
$\log(GDP)_d$	657,060	24.583	2.320	17.713	22.880	26.274	30.523
Common Language	657,060	0.170	0.376	0	0	0	1
Contiguity	657,060	0.030	0.171	0	0	0	1
Colonial Rel.	657,060	0.026	0.159	0	0	0	1
Common Currency	657,060	0.017	0.128	0	0	0	1
$Landlocked_d$	657,060	0.143	0.351	0	0	0	1
Intensive Margin (Millions)	657,060	2.4	30.7	1	0.01	0.29	4,791
Extensive Margin	657,060	91	155	1	3	100	903
log(Distance)	657,060	8.653	0.809	3.079	8.242	9.235	9.890
$\log(MR)_o$	657,060	19.118	2.002	13.910	17.697	20.559	26.927
$\log(MR)_d$	657,060	18.930	1.802	14.530	17.601	20.304	24.218

Table A.2: Basic Structural Gravity Models (No Fixed Effects)

	ln(Exports) Model 1	ln(Int. Margin) Model 2	ln(Ext. Margin) Model 3	ln(Exports) Model 4	ln(Int. Margin) Model 5	ln(Ext. Margin) Model 6
Coup Success$_{d(t-1)}$	-0.05^{*}	0.02	-0.07^{***}			
	$(-0.10, 0.003)$	$(-0.02, 0.06)$	$(-0.10, -0.05)$			
Coup Failure$_{d(t-1)}$	-0.03	0.02	-0.05^{***}			
	$(-0.09, 0.02)$	$(-0.03, 0.06)$	$(-0.08, -0.02)$			
Coup Risk$_{d(t-1)}$				-0.20^{***}	-0.01^{***}	-0.19^{***}
				$(-0.21, -0.19)$	$(-0.02, -0.004)$	$(-0.19, -0.18)$
ln(GDP)$_o$	0.82^{***}	0.41^{***}	0.41^{***}	0.83^{***}	0.41^{***}	0.42^{***}
	(0.81, 0.82)	(0.40, 0.41)	(0.40, 0.41)	(0.82, 0.84)	(0.40, 0.42)	(0.42, 0.43)
ln(GDP)$_d$	0.51^{***}	0.28^{***}	0.23^{***}	0.50^{***}	0.28^{***}	0.22^{***}
	(0.51, 0.52)	(0.28, 0.29)	(0.22, 0.23)	(0.49, 0.51)	(0.28, 0.29)	(0.21, 0.22)
WTO Member$_o$	0.31^{***}	-0.18^{***}	0.49^{***}	0.31^{***}	-0.18^{***}	0.49^{***}
	(0.29, 0.33)	$(-0.19, -0.17)$	(0.48, 0.50)	(0.30, 0.33)	$(-0.19, -0.17)$	(0.48, 0.50)
WTO Member$_d$	0.23^{***}	0.12^{***}	0.12^{***}	0.17^{***}	0.11^{***}	0.06^{***}
	(0.22, 0.25)	(0.10, 0.13)	(0.11, 0.13)	(0.16, 0.19)	(0.10, 0.13)	(0.05, 0.07)
PTA$_{od}$	0.85^{***}	0.36^{***}	0.49^{***}	0.81^{***}	0.36^{***}	0.45^{***}
	(0.83, 0.87)	(0.34, 0.38)	(0.48, 0.50)	(0.79, 0.83)	(0.34, 0.38)	(0.44, 0.46)
ln(Dist)$_{od}$	-1.00^{***}	-0.49^{***}	-0.51^{***}	-1.00^{***}	-0.49^{***}	-0.51^{***}
	$(-1.00, -0.99)$	$(-0.50, -0.48)$	$(-0.51, -0.50)$	$(-1.00, -0.99)$	$(-0.50, -0.48)$	$(-0.51, -0.50)$
ln(MR)$_o$	-0.43^{***}	-0.20^{***}	-0.23^{***}	-0.41^{***}	-0.20^{***}	-0.21^{***}
	$(-0.44, -0.42)$	$(-0.21, -0.19)$	$(-0.23, -0.22)$	$(-0.42, -0.40)$	$(-0.21, -0.19)$	$(-0.22, -0.21)$
ln(MR)$_d$	-0.48^{***}	-0.41^{***}	-0.07^{***}	-0.46^{***}	-0.41^{***}	-0.05^{***}
	$(-0.49, -0.47)$	$(-0.42, -0.41)$	$(-0.07, -0.06)$	$(-0.47, -0.45)$	$(-0.42, -0.40)$	$(-0.05, -0.04)$
Language$_{od}$	0.84^{***}	0.30^{***}	0.54^{***}	0.84^{***}	0.30^{***}	0.54^{***}
	(0.82, 0.86)	(0.29, 0.31)	(0.53, 0.55)	(0.82, 0.86)	(0.29, 0.31)	(0.53, 0.55)
Contiguity$_{od}$	0.79^{***}	0.47^{***}	0.31^{***}	0.85^{***}	0.48^{***}	0.37^{***}
	(0.75, 0.82)	(0.44, 0.50)	(0.29, 0.33)	(0.81, 0.88)	(0.45, 0.51)	(0.35, 0.39)
Colonial Rel.$_{od}$	0.92^{***}	0.28^{***}	0.63^{***}	0.89^{***}	0.28^{***}	0.61^{***}
	(0.88, 0.95)	(0.25, 0.31)	(0.61, 0.65)	(0.85, 0.93)	(0.25, 0.31)	(0.59, 0.63)
Common Cur.$_{od}$	0.23^{***}	0.24^{***}	-0.01	0.21^{***}	0.24^{***}	-0.03^{**}
	(0.18, 0.28)	(0.20, 0.28)	$(-0.04, 0.01)$	(0.16, 0.26)	(0.20, 0.28)	$(-0.05, -0.01)$
Landlocked$_d$	-0.53^{***}	-0.40^{***}	-0.13^{***}	-0.56^{***}	-0.40^{***}	-0.16^{***}
	$(-0.54, -0.51)$	$(-0.41, -0.39)$	$(-0.14, -0.12)$	$(-0.58, -0.54)$	$(-0.42, -0.39)$	$(-0.17, -0.15)$
Constant	6.82^{***}	9.95^{***}	-3.13^{***}	5.99^{***}	9.92^{***}	-3.93^{***}
	(6.59, 7.05)	(9.77, 10.13)	$(-3.24, -3.02)$	(5.76, 6.22)	(9.74, 10.10)	$(-4.04, -3.82)$
N	657,054	657,054	657,054	657,054	657,054	657,054
R^2	0.63	0.46	0.62	0.64	0.46	0.63
Adjusted R^2	0.63	0.46	0.62	0.64	0.46	0.63

OLS coefficients with 95 percent confidence intervals in parenthesis. *** p less than 0.01, ** p less than 0.05, * p less than 0.1

A.2 The Latent Coup Risk Index

Model fitting was accomplished by estimating an initial 5,000 Marcov Chain Monte Carlo (MCMC) scans which were then discarded as burn-in.[1] The posterior summaries discussed in the results section are based on a posterior sample size of 1,000, obtained by running an additional 50,000 MCMC scans and storing every 50^{th} scan. The Markov chain was reasonably well mixed, with diagnostics tests (discussed be-

[1]Normal priors are assumed on the factor loadings and factor scores, improper uniform priors are assumed on the cut-points, and inverse gamma priors are assumed for the error variances (uniqueness).

Table A.3: Poisson Pseudo ML Structural Gravity Models

	Exports Model 1	Int. Margin Model 2	Ext. Margin Model 3	Exports Model 4	Int. Margin Model 5	Ext. Margin Model 6
Coup Success$_{t-1}$	−0.01	0.02	−0.05***			
	(−0.07, 0.05)	(−0.21, 0.26)	(−0.07, −0.03)			
Coup Failure$_{t-1}$	−0.11**	0.12	−0.04***			
	(−0.21, −0.01)	(−0.15, 0.39)	(−0.06, −0.02)			
Coup Risk$_{t-1}$				−0.10**	−0.24	−0.05***
				(−0.18, −0.01)	(−0.55, 0.08)	(−0.07, −0.03)
ln(GDP)$_o$	0.49**	−0.42**	1.55***	0.50***	−0.38**	1.55***
	(0.10, 0.88)	(−0.82, −0.02)	(1.47, 1.62)	(0.13, 0.87)	(−0.77, −0.003)	(1.47, 1.62)
ln(GDP)$_d$	0.71***	0.14	0.38***	0.70***	0.10	0.37***
	(0.62, 0.80)	(−0.10, 0.38)	(0.35, 0.41)	(0.61, 0.79)	(−0.11, 0.32)	(0.34, 0.40)
WTO Member$_o$	0.32***	−0.39**	0.15***	0.32***	−0.39**	0.15***
	(0.19, 0.46)	(−0.72, −0.05)	(0.12, 0.19)	(0.19, 0.45)	(−0.71, −0.06)	(0.12, 0.19)
WTO Member$_d$	0.28***	0.40**	0.10***	0.29***	0.43***	0.10***
	(0.15, 0.41)	(0.10, 0.71)	(0.06, 0.13)	(0.16, 0.41)	(0.14, 0.73)	(0.07, 0.13)
ln(MR)$_o$	−0.18	−0.72***	1.21***	−0.17	−0.70***	1.21***
	(−0.50, 0.15)	(−1.10, −0.33)	(1.14, 1.27)	(−0.48, 0.14)	(−1.08, −0.33)	(1.14, 1.27)
ln(MR)$_d$	0.02	−0.29***	0.23***	0.02	−0.30***	0.23***
	(−0.01, 0.05)	(−0.42, −0.17)	(0.22, 0.25)	(−0.01, 0.06)	(−0.43, −0.18)	(0.22, 0.25)
N	657,054	657,054	657,054	657,054	657,054	657,054

OLS coefficients with 95 percent confidence intervals in parenthesis (with robust standard errors clustered on the dyad). All estimated models include dyad and year fixed effects. *** p less than 0.01, ** p less than 0.05, * p less than 0.1

low) suggesting that the sample is approximately from the stationary distribution of the chain.

Table A.10 is a summary of the posterior distribution of mean factor loadings (discrimination scores for the ordinal variables) and their associated standard deviations. The items in parenthesis are the 95% confidence intervals. The factor loading on the CCS Index of -0.041 is relatively large and indicates that the strength of civil society is huge factor in reducing coup risk. The small standard deviation and the associated confidence intervals reinforce this, suggesting it is a significant factor.

Our takeaway is that the strength of civil society is an important determinant of coup risk, outweighing all the other variables. Moving on to the effect of the competitiveness of the electoral process, its item discrimination score of -0.762 is suggestive of its important effect on latent coup risk. This is reinforced by the low standard deviation score and the 95% confidence intervals. With a discrimination score of -0.982, the regulation of participation is also relatively important, although slightly less in importance compared to competitiveness. The time elapsed between

Table A.4: Structural Gravity Models - Accounting for Market Entry Costs

	ln(Exports) Model 1	ln(Int. Margin) Model 2	ln(Ext. Margin) Model 3
Coup Risk$_{t-1}$	-0.07	-0.04	-0.04
	$(-0.18, 0.03)$	$(-0.11, 0.04)$	$(-0.09, 0.01)$
ln(GDP)$_o$	3.08^{***}	1.43^{***}	1.65^{***}
	(2.80, 3.36)	(1.23, 1.63)	(1.52, 1.78)
ln(GDP)$_d$	1.04^{***}	0.43^{***}	0.62^{***}
	(0.89, 1.20)	(0.32, 0.54)	(0.54, 0.69)
WTO Member$_o$	-0.41^{***}	-0.32^{***}	-0.09^{*}
	$(-0.62, -0.19)$	$(-0.48, -0.16)$	$(-0.18, 0.01)$
WTO Member$_d$	0.23^{**}	0.12	0.12^{**}
	(0.04, 0.42)	$(-0.03, 0.26)$	(0.03, 0.21)
ln(MR)$_o$	2.09^{***}	0.88^{***}	1.21^{***}
	(1.78, 2.39)	(0.65, 1.10)	(1.07, 1.35)
ln(MR)$_d$	0.19^{**}	-0.22^{***}	0.41^{***}
	(0.05, 0.34)	$(-0.33, -0.11)$	(0.34, 0.48)
Low Cost$_{t-1}$	0.16^{***}	0.09^{***}	0.07^{***}
	(0.11, 0.21)	(0.05, 0.13)	(0.05, 0.09)
High Cost$_{t-1}$	-0.08^{*}	-0.08^{*}	-0.01
	$(-0.18, 0.01)$	$(-0.15, 0.004)$	$(-0.04, 0.03)$
Low Cost$_{t-1}$ x Coup Risk$_{t-1}$	0.06^{**}	0.01	0.06^{***}
	(0.01, 0.12)	$(-0.04, 0.05)$	(0.03, 0.08)
High Cost$_{t-1}$ x Coup Risk$_{t-1}$	-0.05	0.06	-0.11^{***}
	$(-0.20, 0.11)$	$(-0.07, 0.20)$	$(-0.17, -0.05)$
N	231,327	231,327	231,327
R^2	0.90	0.81	0.93
Adjusted R^2	0.89	0.79	0.92

OLS coefficients with 95 percent confidence intervals in parenthesis (with robust standard errors clustered on the dyad). All estimated models include dyad and year fixed effects.
*** p less than 0.01, ** p less than 0.05, * p less than 0.1

Table A.5: Trade Effect on Coup Risk and Coup Attempt

	Dep. Var: Coup Risk Model 1	Dep. Var: Coup Attempt Model 2
$\ln(\text{Exports})_{t-1}$	0.02	0.07
	(−0.05, 0.09)	(−0.18, 0.32)
ln(Pop)	−0.02	−0.07
	(−0.10, 0.06)	(−0.35, 0.21)
ln(GDPpc)	-0.23^{***}	-0.62^{***}
	(−0.33, −0.13)	(−0.97, −0.26)
Polcon	-0.51^{***}	-2.03^{***}
	(−0.87, −0.15)	(−3.17, −0.88)
Constant	1.50^{***}	0.05
	(0.71, 2.28)	(−2.40, 2.50)
N	5,402	
Adjusted R^2	0.30	

Coefficients with 95 percent confidence intervals in parenthesis. Standard errors are clustered by country.
*** p less than 0.01, ** p less than 0.05, * p less than 0.1

Table A.6: Structural Gravity Models - Accounting for Varying Time Intervals (3-Year Intervals)

	ln(Exports) Model 1	ln(Int. Margin) Model 2	ln(Ext. Margin) Model 3	ln(Exports) Model 4	ln(Int. Margin) Model 5	ln(Ext. Margin) Model 6
$\text{Coup Success}_{t-1}$	−0.06	0.04	-0.10^{***}			
	(−0.16, 0.05)	(−0.05, 0.12)	(−0.14, −0.05)			
$\text{Coup Failure}_{t-1}$	-0.09^{*}	-0.08^{**}	−0.01			
	(−0.19, 0.01)	(−0.16, −0.0001)	(−0.06, 0.04)			
Coup Risk_{t-1}				-0.08^{***}	0.004	-0.08^{***}
				(−0.13, −0.03)	(−0.04, 0.04)	(−0.11, −0.06)
$\ln(\text{GDP})_o$	1.65^{***}	0.55^{***}	1.10^{***}	1.65^{***}	0.55^{***}	1.10^{***}
	(1.54, 1.75)	(0.47, 0.63)	(1.05, 1.15)	(1.54, 1.75)	(0.47, 0.63)	(1.05, 1.15)
$\ln(\text{GDP})_d$	1.04^{***}	0.38^{***}	0.66^{***}	1.03^{***}	0.39^{***}	0.64^{***}
	(0.97, 1.11)	(0.33, 0.43)	(0.62, 0.69)	(0.96, 1.10)	(0.34, 0.44)	(0.61, 0.68)
WTO Member_o	0.07^{*}	-0.05^{*}	0.13^{***}	0.07^{*}	-0.05^{*}	0.13^{***}
	(−0.003, 0.15)	(−0.12, 0.01)	(0.09, 0.16)	(−0.004, 0.15)	(−0.12, 0.01)	(0.09, 0.16)
WTO Member_d	0.33^{***}	0.16^{***}	0.16^{***}	0.33^{***}	0.16^{***}	0.17^{***}
	(0.26, 0.39)	(0.11, 0.21)	(0.13, 0.20)	(0.27, 0.40)	(0.11, 0.21)	(0.13, 0.21)
$\ln(\text{MR})_o$	0.58^{***}	−0.02	0.60^{***}	0.58^{***}	−0.02	0.60^{***}
	(0.49, 0.67)	(−0.09, 0.05)	(0.56, 0.65)	(0.49, 0.67)	(−0.09, 0.05)	(0.56, 0.65)
$\ln(\text{MR})_d$	0.21^{***}	-0.22^{***}	0.43^{***}	0.21^{***}	-0.22^{***}	0.43^{***}
	(0.16, 0.26)	(−0.26, −0.18)	(0.41, 0.46)	(0.16, 0.26)	(−0.26, −0.18)	(0.40, 0.46)
N	215,451	215,451	215,451	215,451	215,451	215,451
R^2	0.85	0.74	0.88	0.85	0.74	0.88
Adjusted R^2	0.83	0.70	0.87	0.83	0.70	0.87

OLS coefficients with 95 percent confidence intervals in parenthesis (with robust standard errors clustered on the dyad). All estimated models include dyad and year fixed effects. *** p less than 0.01, ** p less than 0.05, * p less than 0.1

Table A.7: Structural Gravity Models - Accounting for Varying Time Intervals (5-Year Intervals)

	ln(Exports) Model 1	ln(Int. Margin) Model 2	ln(Ext. Margin) Model 3	ln(Exports) Model 4	ln(Int. Margin) Model 5	ln(Ext. Margin) Model 6
Coup Success$_{t-1}$	0.11*	0.08	0.03			
	(−0.01, 0.23)	(−0.02, 0.18)	(−0.03, 0.09)			
Coup Failure$_{t-1}$	−0.18***	−0.15***	−0.03			
	(−0.28, −0.07)	(−0.24, −0.05)	(−0.08, 0.02)			
Coup Risk$_{t-1}$				−0.09***	−0.03	−0.06***
				(−0.15, −0.04)	(−0.08, 0.01)	(−0.09, −0.03)
ln(GDP)$_o$	1.72***	0.59***	1.14***	1.72***	0.59***	1.13***
	(1.60, 1.84)	(0.50, 0.68)	(1.08, 1.19)	(1.60, 1.84)	(0.50, 0.68)	(1.08, 1.19)
ln(GDP)$_d$	1.01***	0.37***	0.64***	1.00***	0.36***	0.63***
	(0.93, 1.09)	(0.31, 0.43)	(0.60, 0.68)	(0.91, 1.08)	(0.31, 0.42)	(0.59, 0.67)
WTO Member$_o$	0.07*	−0.06*	0.13***	0.07*	−0.06*	0.13***
	(−0.01, 0.16)	(−0.13, 0.01)	(0.10, 0.17)	(−0.01, 0.16)	(−0.13, 0.01)	(0.10, 0.17)
WTO Member$_d$	0.32***	0.14***	0.18***	0.33***	0.14***	0.18***
	(0.25, 0.40)	(0.09, 0.20)	(0.14, 0.22)	(0.25, 0.40)	(0.09, 0.20)	(0.14, 0.22)
ln(MR)$_o$	0.66***	0.03	0.63***	0.66***	0.03	0.63***
	(0.55, 0.77)	(−0.05, 0.11)	(0.58, 0.69)	(0.55, 0.77)	(−0.05, 0.11)	(0.58, 0.68)
ln(MR)$_d$	0.18***	−0.23***	0.40***	0.18***	−0.23***	0.40***
	(0.12, 0.24)	(−0.27, −0.18)	(0.37, 0.43)	(0.12, 0.23)	(−0.27, −0.18)	(0.37, 0.43)
N	130,059	130,059	130,059	130,059	130,059	130,059
R^2	0.86	0.75	0.89	0.86	0.75	0.89
Adjusted R^2	0.83	0.70	0.87	0.83	0.70	0.87

OLS coefficients with 95 percent confidence intervals in parenthesis (with robust standard errors clustered on the dyad). All estimated models include dyad and year fixed effects. *** p less than 0.01, ** p less than 0.05, * p less than 0.1

coups has a factor loading of -0.166, indicating its relatively high impact in driving coup risk. Again, a low standard deviation and the associated confidence intervals reinforce this.

A.2.1 Diagnostics Tests

The tables and figures below present the results of various diagnostics tests of the estimation of latent coup risk.

Descriptive Statistics

Table A.11 presents descriptive summary statistics for the variables included in the estimation of the coup risk index. It reports the number of observations on which the values are based, the mean, standard deviation, minimum, 25^{th} and 75^{th} percentile and maximum values.

Table A.8: Basic Structural Gravity Models (No Fixed Effects) With Lagged DV.

	ln(Exports) Model 1	ln(Int. Margin) Model 2	ln(Ext. Margin) Model 3	ln(Exports) Model 4	ln(Int. Margin) Model 5	ln(Ext. Margin) Model 6
Coup Success$_{t-1}$	-0.06^{**}	0.01	-0.07^{***}			
	$(-0.11, -0.005)$	$(-0.03, 0.05)$	$(-0.09, -0.04)$			
Coup Failure$_{t-1}$	-0.04	0.003	-0.05^{***}			
	$(-0.10, 0.01)$	$(-0.04, 0.05)$	$(-0.07, -0.02)$			
Coup Risk$_{t-1}$				-0.18^{***}	-0.02^{***}	-0.16^{***}
				$(-0.19, -0.17)$	$(-0.03, -0.01)$	$(-0.16, -0.15)$
ln(Exports)$_t - 1$	0.19^{***}			0.19^{***}		
	(0.19, 0.20)			(0.19, 0.20)		
ln(Int. Margin)$_t - 1$		0.26^{***}			0.26^{***}	
		(0.25, 0.26)			(0.25, 0.26)	
ln(Ext. Margin)$_t - 1$			0.24^{***}			0.23^{***}
			(0.23, 0.24)			(0.23, 0.23)
ln(GDP)$_o$	0.73^{***}	0.35^{***}	0.36^{***}	0.75^{***}	0.35^{***}	0.38^{***}
	(0.73, 0.74)	(0.34, 0.36)	(0.36, 0.37)	(0.74, 0.76)	(0.35, 0.36)	(0.37, 0.38)
ln(GDP)$_d$	0.41^{***}	0.21^{***}	0.17^{***}	0.40^{***}	0.21^{***}	0.16^{***}
	(0.41, 0.42)	(0.21, 0.22)	(0.17, 0.18)	(0.39, 0.41)	(0.21, 0.22)	(0.16, 0.17)
WTO Member$_o$	0.28^{***}	-0.15^{***}	0.43^{***}	0.28^{***}	-0.15^{***}	0.43^{***}
	(0.27, 0.30)	$(-0.16, -0.14)$	(0.42, 0.44)	(0.27, 0.30)	$(-0.16, -0.14)$	(0.42, 0.44)
WTO Member$_d$	0.21^{***}	0.10^{***}	0.11^{***}	0.16^{***}	0.10^{***}	0.06^{***}
	(0.20, 0.23)	(0.09, 0.12)	(0.10, 0.11)	(0.14, 0.17)	(0.08, 0.11)	(0.05, 0.07)
PTA$_{od}$	0.73^{***}	0.31^{***}	0.39^{***}	0.69^{***}	0.31^{***}	0.36^{***}
	(0.70, 0.75)	(0.29, 0.33)	(0.38, 0.40)	(0.67, 0.71)	(0.29, 0.32)	(0.35, 0.37)
ln(Dist)$_{od}$	-0.81^{***}	-0.36^{***}	-0.39^{***}	-0.81^{***}	-0.36^{***}	-0.40^{***}
	$(-0.82, -0.80)$	$(-0.37, -0.36)$	$(-0.40, -0.39)$	$(-0.82, -0.80)$	$(-0.37, -0.36)$	$(-0.40, -0.39)$
ln(MR)$_o$	-0.38^{***}	-0.17^{***}	-0.19^{***}	-0.36^{***}	-0.17^{***}	-0.18^{***}
	$(-0.39, -0.37)$	$(-0.18, -0.17)$	$(-0.20, -0.19)$	$(-0.37, -0.35)$	$(-0.18, -0.16)$	$(-0.18, -0.17)$
ln(MR)$_d$	-0.41^{***}	-0.32^{***}	-0.07^{***}	-0.39^{***}	-0.32^{***}	-0.05^{***}
	$(-0.42, -0.40)$	$(-0.33, -0.31)$	$(-0.08, -0.07)$	$(-0.40, -0.38)$	$(-0.32, -0.31)$	$(-0.06, -0.05)$
Contiguity$_{od}$	0.79^{***}	0.46^{***}	0.33^{***}	0.84^{***}	0.47^{***}	0.38^{***}
	(0.75, 0.83)	(0.43, 0.49)	(0.31, 0.35)	(0.81, 0.88)	(0.44, 0.50)	(0.36, 0.39)
Constant	4.76^{***}	6.90^{***}	-2.83^{***}	4.00^{***}	6.81^{***}	-3.51^{***}
	(4.54, 4.98)	(6.73, 7.07)	$(-2.94, -2.72)$	(3.77, 4.22)	(6.64, 6.99)	$(-3.62, -3.40)$
N	657,060	657,060	657,060	657,060	657,060	657,060
R^2	0.66	0.51	0.67	0.66	0.51	0.67
Adjusted R^2	0.66	0.51	0.67	0.66	0.51	0.67

OLS coefficients with 95 percent confidence intervals in parenthesis (with robust standard errors clustered on the dyad). The effect of being landlocked, shared language, currency and colonial relations are estimated but not presented above to save space. All models include dyad and year fixed effects. *** p less than 0.01, ** p less than 0.05, * p less than 0.1

Geweke Diagnostics

To test convergence I rely on the Geweke convergence diagnostic (Geweke 1992). This tests for the equality of the means of the first 10% and the last 50% of the Markov Chain from which the posterior distribution is drawn. Equality of the two means indicates that the samples are drawn from the stationary distribution part of the chain. The test statistic is calculated as a standard Z-score i.e. the difference between the two sample means divided by the estimated standard error. The standard error comes from the spectral density when it is at zero and so takes any autocorrelation

Table A.9: Basic Structural Gravity Models With Lagged DV.

	ln(Exports) Model 1	ln(Int. Margin) Model 2	ln(Ext. Margin) Model 3	ln(Exports) Model 4	ln(Int. Margin) Model 5	ln(Ext. Margin) Model 6
Coup Success$_{t-1}$	0.01	0.03	-0.02^{*}			
	(−0.04, 0.06)	(−0.01, 0.07)	(−0.05, 0.001)			
Coup Failure$_{t-1}$	-0.08^{***}	-0.04^{*}	-0.04^{***}			
	(−0.13, −0.03)	(−0.09, 0.002)	(−0.06, −0.01)			
Coup Risk$_{t-1}$				-0.08^{***}	−0.02	-0.07^{***}
				(−0.12, −0.04)	(−0.05, 0.02)	(−0.09, −0.04)
ln(Exports)$_t - 1$	0.12^{***}			0.12^{***}		
	(0.12, 0.13)			(0.12, 0.13)		
ln(Int. Margin)$_t - 1$		0.17^{***}			0.17^{***}	
		(0.16, 0.18)			(0.16, 0.18)	
ln(Ext. Margin)$_t - 1$			0.13^{***}			0.13^{***}
			(0.13, 0.14)			(0.13, 0.14)
ln(GDP)$_o$	1.48^{***}	0.48^{***}	0.99^{***}	1.48^{***}	0.48^{***}	0.99^{***}
	(1.39, 1.57)	(0.41, 0.54)	(0.94, 1.03)	(1.39, 1.57)	(0.41, 0.54)	(0.94, 1.03)
ln(GDP)$_d$	0.95^{***}	0.37^{***}	0.57^{***}	0.94^{***}	0.36^{***}	0.57^{***}
	(0.89, 1.01)	(0.33, 0.41)	(0.54, 0.61)	(0.88, 1.00)	(0.32, 0.40)	(0.53, 0.60)
WTO Member$_o$	0.10^{***}	−0.03	0.14^{***}	0.10^{***}	−0.03	0.14^{***}
	(0.04, 0.17)	(−0.08, 0.02)	(0.11, 0.16)	(0.04, 0.17)	(−0.08, 0.02)	(0.11, 0.16)
WTO Member$_d$	0.27^{***}	0.13^{***}	0.14^{***}	0.28^{***}	0.13^{***}	0.14^{***}
	(0.21, 0.33)	(0.09, 0.17)	(0.11, 0.17)	(0.22, 0.33)	(0.09, 0.17)	(0.11, 0.18)
ln(MR)$_o$	0.48^{***}	−0.04	0.52^{***}	0.48^{***}	−0.04	0.52^{***}
	(0.40, 0.56)	(−0.09, 0.02)	(0.48, 0.56)	(0.40, 0.56)	(−0.09, 0.02)	(0.48, 0.56)
ln(MR)$_d$	0.21^{***}	-0.14^{***}	0.37^{***}	0.20^{***}	-0.14^{***}	0.36^{***}
	(0.17, 0.24)	(−0.17, −0.11)	(0.35, 0.39)	(0.17, 0.24)	(−0.17, −0.11)	(0.34, 0.38)
N	657,060	657,060	657,060	657,060	657,060	657,060
R^2	0.84	0.73	0.88	0.84	0.73	0.88
Adjusted R^2	0.83	0.72	0.88	0.83	0.72	0.88

OLS coefficients with 95 percent confidence intervals in parenthesis (with robust standard errors clustered on the dyad). All estimated models include dyad and year fixed effects. *** p less than 0.01, ** p less than 0.05, * p less than 0.1

Table A.10: Posterior Density Summary of the Measurement Model of Coup Risk

Indicator	Mean	St. Dev.
Log(CCS Index)	−0.04074	0.02454
	[−0.0984, −0.002926]	
Competitiveness	−0.76171	0.02568
	[−0.8102, −0.705904]	
Participation	−0.98241	0.02901
	[−1.0410, −0.929328]	
log(Coup Spell)	−0.16584	0.06853
	[−0.3011, −0.034067]	

Table A.11: Summary Statistics

Statistic	N	Mean	St. Dev.	Min	Pctl(25)	Pctl(75)	Max
CCS Index	11,123	0.530	0.316	0.010	0.232	0.853	0.979
log(CCS Index)	11,123	−0.947	0.950	−4.652	−1.461	−0.158	−0.021
Competitiveness	8,785	2.828	1.565	0.000	1.000	4.000	5.000
Participation	8,785	3.585	1.078	1.000	3.000	4.000	5.000
Coup Spell	10,875	26.387	20.408	1.000	9.000	41.000	72.000
log(Coup Spell)	10,875	2.845	1.073	0.000	2.197	3.714	4.277

into account. The expected outcome is to have 95% of the values between -2 and 2. As Figure A.1 below shows, all the posterior draws for the various components are within this range, which is shaded on the figure.

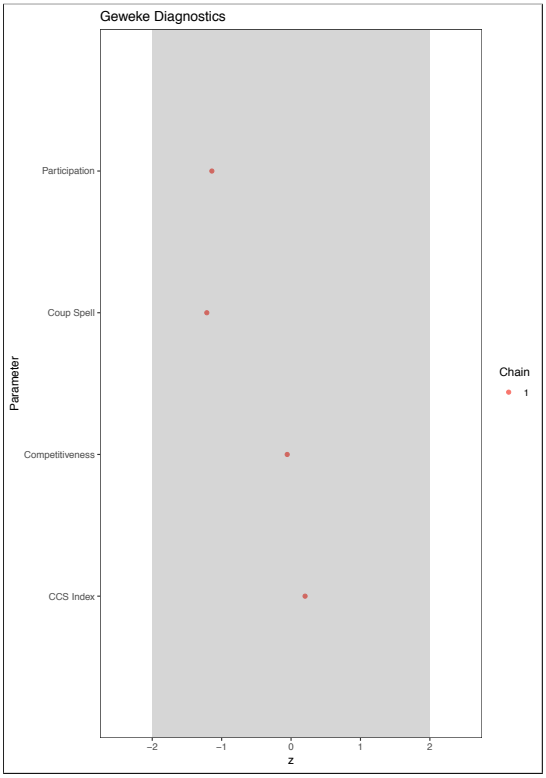

Figure A.1: Geweke Diagnostics

Density Plot

Figure A.2 presents a density plot of the values and the shape of the posterior distribution of the index components.

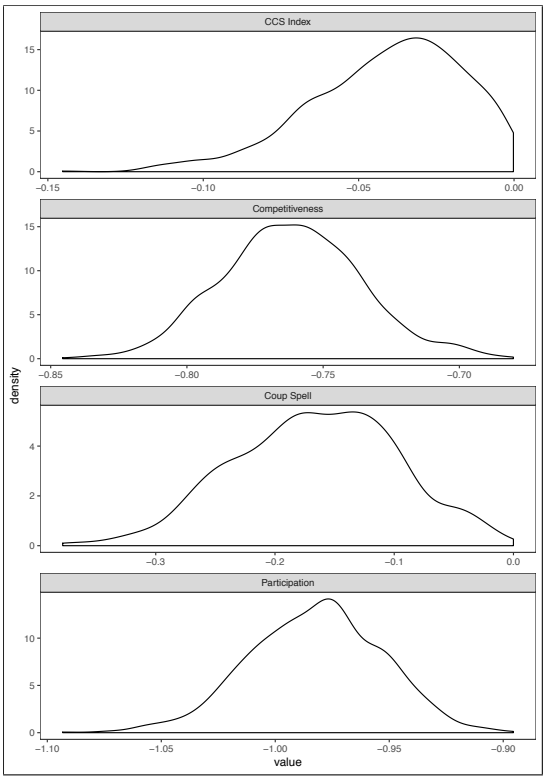

Figure A.2: Density Plot

Trace Plot

Figure A.3 presents a trace plot of the index components. Trace plots are useful for assessing convergence and diagnosing chain problems. It is essentially a time series of the sampling process. As the plot shows, all the various components achieved convergence, evidenced by the relatively flat "white-noise" nature of each plot.

Running Mean Plot

Figure A.4 presents a running mean plot of the index components. Running mean plots allows us to check how quickly a chain approaches its target distribution (the

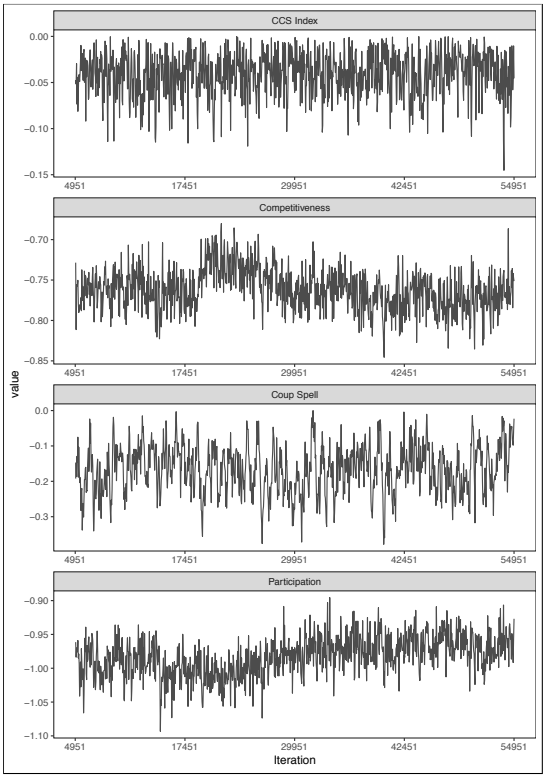

Figure A.3: Trace Plot

mean). In each plot, the horizontal line is the mean of the chain. The plot indicates that chain of each component approaches its mean relatively quickly.

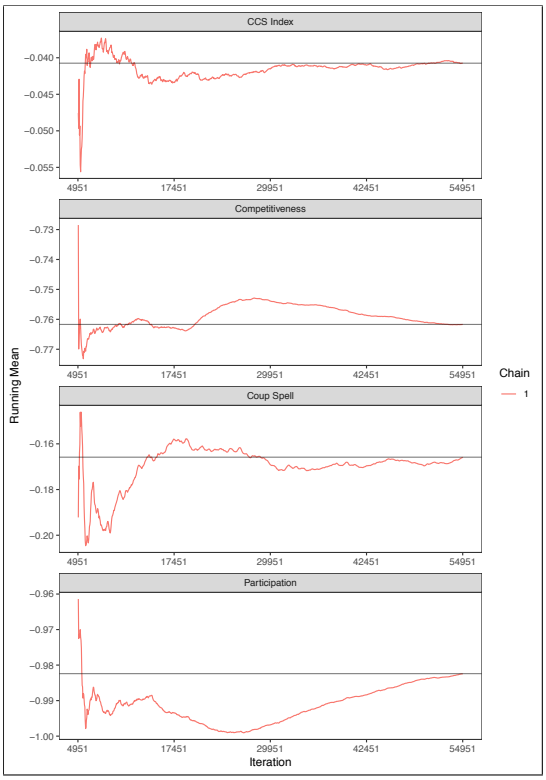

Figure A.4: Running Mean Plot

Appendix B

Intra-Industry Trade and Coup Propensity

B.1 Descriptive Statistics

Table B.1 presents descriptive statistics for selected variables. It reports the number of observations on which the values are based, the mean, standard deviation, minimum, 25th and 75th percentile and maximum values.

Table B.1: Descriptive Statistics

Statistic	N	Mean	St. Dev.	Min	Pctl(25)	Pctl(75)	Max
Coup Attempt	7,917	0.087	0.281	0.000	0.000	0.000	1.000
$IIT_{10\%Threshold}$	9,263	0.067	0.112	0.000	0.000	0.076	0.500
Inter-$IT_{10\%Threshold}$	9,263	0.933	0.112	0.500	0.924	1.000	1.000
$IIT_{15\%Threshold}$	9,263	0.057	0.100	0.000	0.000	0.062	0.458
Inter-$IT_{15\%Threshold}$	9,263	0.943	0.100	0.542	0.938	1.000	1.000
$HIIT_{15\%Threshold}$	9,263	0.005	0.011	0.000	0.000	0.004	0.176
$HIIT_{25\%Threshold}$	9,263	0.008	0.016	0.000	0.000	0.007	0.177
$VIIT_{15\%Threshold}$	9,263	0.659	0.144	0.500	0.500	0.760	0.998
$VIIT_{25\%Threshold}$	9,263	0.656	0.144	0.500	0.500	0.758	0.998
log(GDP)	7,917	2.195	2.412	−4.730	0.371	3.871	9.764
log(GDPpc)	7,917	7.263	1.685	1.964	5.881	8.466	11.667
Pop. (millions)	7,917	31.856	117.711	0.009	2.551	18.569	1,364.270
Armed Conflict	7,219	0.065	0.246	0.000	0.000	0.000	1.000
Coup Time	7,917	27.853	20.538	1.000	9.000	45.000	69.000
Polity	8,140	0.774	7.286	−10.000	−7.000	8.000	10.000
Region Polity	9,891	−0.033	4.805	−8.000	−3.824	3.353	10.000
Num IO	6,766	48.817	21.169	1.000	34.000	61.000	129.000
Idealpoint	7,447	−0.033	0.886	−2.445	−0.640	0.697	3.004

B.2 Additional Tables

Table B.2: Intra and Inter-Industry Trade Effect On Coups

	DV: Coup Attempts		DV: Coup Attempts	
	Logistic		Rare Events Logistic	
	Model 1	Model 2	Model 3	Model 4
Intra-Ind. Trade	-3.44^{**}		-3.25^{**}	
	$(-6.48, -0.41)$		$(-6.28, -0.22)$	
Inter-Ind. Trade		3.44^{**}		3.25^{**}
		$(0.41, 6.48)$		$(0.22, 6.28)$
log(GDPpc)	-0.24^{***}	-0.24^{***}	-0.24^{***}	-0.24^{***}
	$(-0.35, -0.13)$	$(-0.35, -0.13)$	$(-0.35, -0.13)$	$(-0.35, -0.13)$
Pop.	-0.01^{**}	-0.01^{**}	-0.005^{**}	-0.005^{**}
	$(-0.01, -0.001)$	$(-0.01, -0.001)$	$(-0.01, -0.001)$	$(-0.01, -0.001)$
Polity	-0.07^{***}	-0.07^{***}	-0.07^{***}	-0.07^{***}
	$(-0.09, -0.04)$	$(-0.09, -0.04)$	$(-0.09, -0.04)$	$(-0.09, -0.04)$
Region Polity	0.002	0.002	0.002	0.002
	$(-0.04, 0.04)$	$(-0.04, 0.04)$	$(-0.04, 0.04)$	$(-0.04, 0.04)$
Armed Conflict	0.78^{***}	0.78^{***}	0.79^{***}	0.79^{***}
	$(0.37, 1.20)$	$(0.37, 1.20)$	$(0.37, 1.21)$	$(0.37, 1.21)$
Trade Opennes	0.07	0.07	0.09	0.09
	$(-0.18, 0.32)$	$(-0.18, 0.32)$	$(-0.16, 0.34)$	$(-0.16, 0.34)$
Coup Time	-0.20^{***}	-0.20^{***}	-0.19^{***}	-0.19^{***}
	$(-0.26, -0.14)$	$(-0.26, -0.14)$	$(-0.25, -0.13)$	$(-0.25, -0.13)$
Coup Time^2	0.01^{***}	0.01^{***}	0.01^{***}	0.01^{***}
	$(0.004, 0.01)$	$(0.004, 0.01)$	$(0.003, 0.01)$	$(0.003, 0.01)$
Coup Time^3	-0.000^{***}	-0.000^{***}	-0.000^{***}	-0.000^{***}
	$(-0.000, -0.000)$	$(-0.000, -0.000)$	$(-0.000, -0.000)$	$(-0.000, -0.000)$
Constant	0.63^{*}	-2.82^{*}	1.00^{***}	-2.25
	$(-0.08, 1.33)$	$(-6.03, 0.40)$	$(0.29, 1.70)$	$(-5.47, 0.96)$
N	5,286	5,286	5,286	5,286
Log Likelihood	$-1{,}002.46$	$-1{,}002.46$	$-1{,}002.46$	$-1{,}002.46$
AIC	2,026.92	2,026.92	2,026.92	2,026.92

Coefficients with 95 percent confidence intervals in parenthesis.*** p less than 0.01, ** p less than 0.05, * p less than 0.1.

Table B.3: Intra-Ind. Trade and Coup Attempts (Lagged)

	DV: Coup Attempts		DV: Coup Attempts	
	Logistic		Rare Events Logistic	
	Model 1	Model 2	Model 3	Model 4
IIT_{t-1}	-2.71^{*}		-2.51	
	$(-5.73, 0.31)$		$(-5.53, 0.51)$	
$HIIT_{t-1}$		-38.49^{*}		-34.36^{*}
		$(-77.87, 0.89)$		$(-73.74, 5.02)$
$VIIT_{t-1}$		1.31^{***}		1.31^{***}
		$(0.35, 2.27)$		$(0.35, 2.27)$
log(GDPpc)	-0.27^{***}	-0.22^{***}	-0.26^{***}	-0.22^{***}
	$(-0.38, -0.16)$	$(-0.33, -0.10)$	$(-0.37, -0.15)$	$(-0.33, -0.10)$
Pop.	-0.01^{**}	-0.004^{**}	-0.01^{**}	-0.004^{*}
	$(-0.01, -0.001)$	$(-0.01, -0.000)$	$(-0.01, -0.001)$	$(-0.01, 0.000)$
Polity	-0.07^{***}	-0.07^{***}	-0.07^{***}	-0.07^{***}
	$(-0.10, -0.05)$	$(-0.10, -0.05)$	$(-0.10, -0.05)$	$(-0.10, -0.05)$
Region Polity	0.01	0.01	0.01	0.01
	$(-0.04, 0.05)$	$(-0.04, 0.05)$	$(-0.04, 0.05)$	$(-0.04, 0.05)$
Armed Conflict	0.78^{***}	0.75^{***}	0.79^{***}	0.76^{***}
	$(0.36, 1.20)$	$(0.33, 1.17)$	$(0.37, 1.20)$	$(0.34, 1.18)$
Trade Opennes	0.09	0.21	0.11	0.22^{*}
	$(-0.16, 0.35)$	$(-0.05, 0.46)$	$(-0.14, 0.36)$	$(-0.03, 0.47)$
Coup Time	-0.19^{***}	-0.18^{***}	-0.18^{***}	-0.18^{***}
	$(-0.25, -0.13)$	$(-0.24, -0.12)$	$(-0.25, -0.12)$	$(-0.24, -0.12)$
Coup Time^2	0.01^{***}	0.01^{***}	0.01^{***}	0.01^{***}
	$(0.003, 0.01)$	$(0.003, 0.01)$	$(0.003, 0.01)$	$(0.003, 0.01)$
Coup Time^3	-0.000^{***}	-0.000^{***}	-0.000^{***}	-0.000^{***}
	$(-0.000, -0.000)$	$(-0.000, -0.000)$	$(-0.000, -0.000)$	$(-0.000, -0.000)$
Constant	0.71^{*}	-0.67	1.08^{***}	-0.29
	$(-0.01, 1.42)$	$(-1.93, 0.59)$	$(0.37, 1.80)$	$(-1.55, 0.97)$
N	5,234	5,234	5,234	5,234
Log Likelihood	-988.35	-984.48	-988.35	-984.48
AIC	1,998.70	1,992.96	1,998.70	1,992.96

Coefficients with 95 percent confidence intervals in parenthesis.*** p less than 0.01, ** p less than 0.05, * p less than 0.1.

Table B.4: Intra-Industry Trade and Coups (Alternate Thresholds)

	DV: Coup Attempts		DV: Coup Attempts	
	Logistic		Rare Events Logistic	
	Model 1	Model 2	Model 3	Model 4
IIT	-4.55^{**}		-4.29^{**}	
	$(-8.19, -0.92)$		$(-7.93, -0.66)$	
HIIT		-43.68^{***}		-40.91^{***}
		$(-72.54, -14.81)$		$(-69.77, -12.04)$
VIIT		0.42		0.43
		$(-0.67, 1.50)$		$(-0.65, 1.51)$
log(GDPpc)	-0.24^{***}	-0.22^{***}	-0.24^{***}	-0.22^{***}
	$(-0.35, -0.13)$	$(-0.33, -0.10)$	$(-0.35, -0.13)$	$(-0.33, -0.10)$
Pop.	-0.01^{**}	-0.005^{**}	-0.005^{**}	-0.004^{**}
	$(-0.01, -0.001)$	$(-0.01, -0.000)$	$(-0.01, -0.001)$	$(-0.01, -0.000)$
Polity	-0.07^{***}	-0.07^{***}	-0.07^{***}	-0.06^{***}
	$(-0.09, -0.04)$	$(-0.09, -0.04)$	$(-0.09, -0.04)$	$(-0.09, -0.04)$
Region Polity	0.002	0.004	0.002	0.004
	$(-0.04, 0.04)$	$(-0.04, 0.05)$	$(-0.04, 0.04)$	$(-0.04, 0.05)$
Armed Conflict	0.79^{***}	0.79^{***}	0.79^{***}	0.80^{***}
	(0.37, 1.21)	(0.37, 1.21)	(0.38, 1.21)	(0.38, 1.21)
Trade Opennes	0.07	0.10	0.09	0.12
	$(-0.18, 0.32)$	$(-0.17, 0.36)$	$(-0.17, 0.34)$	$(-0.15, 0.38)$
Coup Time	-0.20^{***}	-0.20^{***}	-0.19^{***}	-0.19^{***}
	$(-0.26, -0.14)$	$(-0.26, -0.13)$	$(-0.25, -0.13)$	$(-0.25, -0.13)$
Coup Time^2	0.01^{***}	0.01^{***}	0.01^{***}	0.01^{***}
	(0.004, 0.01)	(0.004, 0.01)	(0.004, 0.01)	(0.003, 0.01)
Coup Time^3	-0.000^{***}	-0.000^{***}	-0.000^{***}	-0.000^{***}
	$(-0.000, -0.000)$	$(-0.000, -0.000)$	$(-0.000, -0.000)$	$(-0.000, -0.000)$
Constant	0.61^{*}	0.15	0.98^{***}	0.51
	$(-0.09, 1.32)$	$(-1.25, 1.55)$	(0.28, 1.69)	$(-0.89, 1.90)$
N	5,286	5,286	5,286	5,286
Log Likelihood	$-1{,}001.72$	-999.09	$-1{,}001.72$	-999.09
AIC	2,025.44	2,022.18	2,025.44	2,022.18

Coefficients with 95 percent confidence intervals in parenthesis. IIT is calculated at the 15 percent threshold. HIIT and VIIT calcuated at the 25 percent threshold. *** p less than 0.01, ** p less than 0.05, * p less than 0.1.

Table B.5: Intra-Industry Trade and Coups (Placebo Test 2)

	DV: Coup Attempts		DV: Coup Attempts	
	Logistic		Rare Events Logistic	
	Model 1	Model 2	Model 3	Model 4
IIT	0.07		0.10	
	(−1.02, 1.15)		(−0.99, 1.18)	
HIIT		3.96		4.56
		(−7.66, 15.59)		(−7.06, 16.18)
VIIT		0.21		0.22
		(−0.67, 1.08)		(−0.66, 1.09)
log(GDPpc)	−0.30***	−0.28***	−0.30***	−0.27***
	(−0.41, −0.19)	(−0.39, −0.16)	(−0.41, −0.19)	(−0.39, −0.16)
Pop.	−0.01***	−0.01***	−0.01**	−0.01***
	(−0.01, −0.001)	(−0.01, −0.002)	(−0.01, −0.001)	(−0.01, −0.002)
Polity	−0.08***	−0.09***	−0.08***	−0.09***
	(−0.10, −0.05)	(−0.11, −0.06)	(−0.10, −0.05)	(−0.11, −0.06)
Region Polity	0.002	0.02	0.002	0.02
	(−0.04, 0.05)	(−0.03, 0.06)	(−0.04, 0.05)	(−0.03, 0.06)
Armed Conflict	0.84***	0.87***	0.85***	0.88***
	(0.41, 1.27)	(0.43, 1.31)	(0.42, 1.27)	(0.44, 1.32)
Trade Opennes	0.10	0.12	0.12	0.13
	(−0.16, 0.37)	(−0.14, 0.38)	(−0.14, 0.38)	(−0.12, 0.39)
Coup Time	−0.19***	−0.21***	−0.18***	−0.21***
	(−0.25, −0.13)	(−0.28, −0.14)	(−0.25, −0.12)	(−0.28, −0.14)
Coup Time^2	0.01***	0.01***	0.01***	0.01***
	(0.003, 0.01)	(0.004, 0.01)	(0.003, 0.01)	(0.004, 0.01)
Coup Time^3	−0.000***	−0.000***	−0.000***	−0.000***
	(−0.000, −0.000)	(−0.000, −0.000)	(−0.000, −0.000)	(−0.000, −0.000)
Constant	0.80**	0.61	1.20***	0.98**
	(0.06, 1.54)	(−0.35, 1.57)	(0.46, 1.94)	(0.03, 1.94)
N	4,943	4,621	4,943	4,621
Log Likelihood	−923.58	−859.21	−923.58	−859.21
AIC	1,869.15	1,742.43	1,869.15	1,742.43

Coefficients with 95 percent confidence intervals in parenthesis. *** p less than 0.01, ** p less than 0.05, * p less than 0.1.

Table B.6: Intra-Industry Trade and Coups (Placebo Test 3)

	DV: Coup Attempts		DV: Coup Attempts	
	Logistic		Rare Events Logistic	
	Model 1	Model 2	Model 3	Model 4
IIT	−0.43		−0.40	
	(−1.53, 0.67)		(−1.50, 0.70)	
HIIT		6.89		7.25
		(−4.20, 17.99)		(−3.84, 18.35)
VIIT		0.04		0.05
		(−0.83, 0.90)		(−0.82, 0.91)
log(GDPpc)	−0.29***	−0.32***	−0.29***	−0.32***
	(−0.39, −0.18)	(−0.43, −0.21)	(−0.39, −0.18)	(−0.43, −0.21)
Pop.	−0.01**	−0.01**	−0.005**	−0.01**
	(−0.01, −0.001)	(−0.01, −0.001)	(−0.01, −0.001)	(−0.01, −0.001)
Polity	−0.07***	−0.08***	−0.07***	−0.08***
	(−0.10, −0.05)	(−0.11, −0.05)	(−0.10, −0.05)	(−0.11, −0.05)
Region Polity	−0.003	0.02	−0.003	0.02
	(−0.05, 0.04)	(−0.03, 0.06)	(−0.04, 0.04)	(−0.03, 0.06)
Armed Conflict	0.73***	0.75***	0.74***	0.76***
	(0.30, 1.17)	(0.30, 1.20)	(0.31, 1.18)	(0.31, 1.21)
Trade Opennes	0.13	0.17	0.15	0.19
	(−0.12, 0.38)	(−0.07, 0.42)	(−0.10, 0.39)	(−0.06, 0.43)
Coup Time	−0.19***	−0.19***	−0.18***	−0.19***
	(−0.25, −0.13)	(−0.26, −0.13)	(−0.25, −0.12)	(−0.25, −0.12)
Coup Time^2	0.01***	0.01***	0.01***	0.01***
	(0.003, 0.01)	(0.004, 0.01)	(0.003, 0.01)	(0.003, 0.01)
Coup Time^3	−0.000***	−0.000***	−0.000***	−0.000***
	(−0.000, −0.000)	(−0.000, −0.000)	(−0.000, −0.000)	(−0.000, −0.000)
Constant	0.83**	0.91*	1.17***	1.29***
	(0.11, 1.55)	(−0.04, 1.86)	(0.45, 1.89)	(0.35, 2.24)
N	4,959	4,644	4,959	4,644
Log Likelihood	−958.21	−875.82	−958.21	−875.82
AIC	1,938.42	1,775.64	1,938.42	1,775.64

Coefficients with 95 percent confidence intervals in parenthesis. *** p less than 0.01, ** p less than 0.05, * p less than 0.1.

Appendix C

Trade Agreements and coups

C.1 Descriptive Statistics

Table C.1 presents descriptive statistics for selected variables. It reports the number of observations on which the values are based, the mean, standard deviation, minimum, 25th and 75th percentile and maximum values.

Table C.1: Descriptive Statistics

Statistic	N	Mean	St. Dev.	Min	Pctl(25)	Pctl(75)	Max
PTA Impact (Exports)	5,188	0.220	0.304	0	0	0.5	1
PTA Impact (Imports)	5,188	0.228	0.292	0	0	0.5	1
PTA Depth	5,188	0.873	1.738	0	0	1	7
log(GDPpc)	5,188	7.626	1.667	3.362	6.275	8.882	11.667
Pop. (Millions)	5,188	37.888	127.577	0.130	3.609	27.667	1,364.270
Democracy	5,188	0.543	0.498	0	0	1	1
Armed Conflict	5,188	0.037	0.190	0	0	0	1
Coup Time	5,188	30.260	20.909	1	11	49	69
African	5,188	0.268	0.443	0	0	1	1
Outsider Coup	5,188	0.046	0.210	0	0	0	1
Insider Coup	5,188	0.015	0.121	0	0	0	1
PTA Member	5,188	0.105	0.307	0	0	0	1
Number of PTAs	5,188	0.814	1.787	0	0	1	26
WTO*pre*90	3,878	0.355	0.479	0	0	1	1
WTO*post*90	3,878	0.358	0.479	0	0	1	1
Num IOs	3,878	57.812	20.138	13	43	71	129
Oil Prod. (Billions US$)	3,878	6.6	23.3	0.0	0.0	1.7	384.7
log(Trade)	3,878	22.333	2.574	14.767	20.587	24.192	30.054

C.2 Additional Tables

Table C.2: Lagged PTA Impact on Coups

	Outsider Coups			
	Logistic		Mixed-Effects	
	Model 1	Model 2	Model 3	Model 4
PTA Impact (Imports)$_{t-1}$	-1.60^{***}		-1.48^{**}	
	$(-2.82, -0.39)$		$(-2.79, -0.17)$	
PTA Impact (Exports)$_{t-1}$		-1.22^{**}		-1.12^{**}
		$(-2.22, -0.21)$		$(-2.21, -0.02)$
PTA Membership	-0.09	-0.04	-0.03	0.01
	$(-0.52, 0.34)$	$(-0.48, 0.40)$	$(-0.52, 0.46)$	$(-0.48, 0.51)$
Number of PTAs	-0.09	-0.10	-0.07	-0.08
	$(-0.27, 0.10)$	$(-0.28, 0.09)$	$(-0.25, 0.11)$	$(-0.26, 0.11)$
PTA Depth	0.04	0.03	0.05	0.04
	$(-0.09, 0.17)$	$(-0.10, 0.15)$	$(-0.08, 0.18)$	$(-0.09, 0.16)$
log(GDPpc)	-0.29^{***}	-0.30^{***}	-0.33^{***}	-0.35^{***}
	$(-0.42, -0.15)$	$(-0.43, -0.16)$	$(-0.50, -0.16)$	$(-0.52, -0.17)$
Pop.	-0.01^{**}	-0.01^{**}	-0.01	-0.01
	$(-0.01, -0.001)$	$(-0.01, -0.001)$	$(-0.01, 0.002)$	$(-0.01, 0.002)$
Democracy	-0.53^{***}	-0.54^{***}	-0.75^{***}	-0.77^{***}
	$(-0.89, -0.16)$	$(-0.90, -0.18)$	$(-1.15, -0.34)$	$(-1.17, -0.37)$
Armed Conflict	0.46^{*}	0.47^{*}	0.50	0.50
	$(-0.05, 0.98)$	$(-0.05, 0.98)$	$(-0.12, 1.12)$	$(-0.12, 1.12)$
Coup Time	-0.20^{***}	-0.20^{***}	-0.15^{***}	-0.15^{***}
	$(-0.29, -0.12)$	$(-0.29, -0.12)$	$(-0.24, -0.06)$	$(-0.24, -0.06)$
Coup Time^2	0.01^{***}	0.01^{***}	0.01^{**}	0.01^{**}
	$(0.003, 0.01)$	$(0.003, 0.01)$	$(0.001, 0.01)$	$(0.001, 0.01)$
Coup Time^3	-0.000^{***}	-0.000^{***}	-0.000^{**}	-0.000^{**}
	$(-0.000, -0.000)$	$(-0.000, -0.000)$	$(-0.000, -0.000)$	$(-0.000, -0.000)$
Constant	0.94^{**}	1.01^{**}	0.69	0.80
	$(0.08, 1.81)$	$(0.15, 1.87)$	$(-0.44, 1.82)$	$(-0.32, 1.91)$
N	4,884	4,884	4,884	4,884
Log Likelihood	-716.09	-716.80	-704.34	-704.85
AIC	1,456.17	1,457.59	1,434.69	1,435.70
BIC			1,519.11	1,520.11

Coefficients with 95 percent confidence intervals in parenthesis. *** p less than 0.01, ** p less than 0.05, * p less than 0.1.

Table C.3: Effect of Coups on PTAs (Reverse Causal Models)

	PTA Impact (Imports)		PTA Impact (Exports)	
	Linear Model 1	Mixed-Effects Model 2	Linear Model 3	Mixed-Effects Model 4
Outsider Coups	−0.005	−0.004	−0.01	−0.01
	(−0.03, 0.02)	(−0.02, 0.02)	(−0.04, 0.02)	(−0.04, 0.01)
log(GDPpc)	0.03***	0.03***	0.02***	0.02***
	(0.02, 0.03)	(0.02, 0.04)	(0.01, 0.03)	(0.01, 0.03)
Pop.	−0.000***	−0.000***	−0.000***	−0.000***
	(−0.000, −0.000)	(−0.001, −0.000)	(−0.000, −0.000)	(−0.000, −0.000)
Democracy	0.03***	0.01	0.02**	−0.004
	(0.01, 0.04)	(−0.01, 0.03)	(0.003, 0.04)	(−0.02, 0.02)
Armed Conflict	−0.01	−0.02*	−0.02	−0.03
	(−0.04, 0.02)	(−0.05, 0.005)	(−0.06, 0.01)	(−0.06, 0.01)
WTO_{pre90}	−0.04***	0.01	−0.03***	−0.01
	(−0.05, −0.02)	(−0.01, 0.03)	(−0.05, −0.02)	(−0.03, 0.01)
WTO_{post90}	−0.02**	0.07***	−0.07***	0.03***
	(−0.04, −0.003)	(0.05, 0.09)	(−0.09, −0.04)	(0.01, 0.06)
Num IOs	0.01***	0.004***	0.01***	0.003***
	(0.01, 0.01)	(0.003, 0.004)	(0.01, 0.01)	(0.002, 0.004)
African	0.02*	−0.02	−0.03***	−0.11***
	(−0.002, 0.04)	(−0.09, 0.04)	(−0.05, −0.01)	(−0.17, −0.05)
Oil Prod.	−0.00***	−0.00**	−0.00***	−0.00**
	(−0.00, −0.00)	(−0.00, −0.00)	(−0.00, −0.00)	(−0.00, −0.00)
Coup Time	0.003***	0.001***	0.003***	0.001***
	(0.003, 0.003)	(0.001, 0.002)	(0.002, 0.003)	(0.000, 0.002)
Constant	−0.43***	−0.27***	−0.34***	−0.12***
	(−0.48, −0.39)	(−0.34, −0.20)	(−0.38, −0.29)	(−0.20, −0.04)
N	3,878	3,878	3,878	3,878
R^2	0.45		0.36	
Adjusted R^2	0.45		0.35	
Log Likelihood		1,732.48		1,134.92
Residual Std. Error	0.20		0.22	
F Statistic	288.39***		193.81***	
AIC		−3,436.96		−2,241.83
BIC		−3,349.28		−2,154.15

Coefficients with 95 percent confidence intervals in parenthesis. *** p less than 0.01, ** p less than 0.05, * p less than 0.1.