Does the OECD Anti-Bribery Convention Affect Bribery?

An Empirical Analysis Using the Unmatched Count Technique

Nathan M. Jensen
Associate Professor
George Washington School of Business
Washington D.C.
2201 G Street NW
Funger Hall 401
Phone: 202-994-0820
Fax: 202-994-7422

Edmund J. Malesky
Associate Professor
Duke University
Department of Political Science
140 Science Dr., Rm 208 Gross Hall,
Box 90204
Durham, NC 27708
(919) 660-4300
ejm5@duke.edu

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Abstract

Substantial debate exists over the effect of the OECD Anti-Bribery Convention (ABC) on the propensity of firms to bribe officials in host countries. Unfortunately, research in this area has been hampered by reporting bias. Since the Convention raises the probability of punishment for bribery, it reduces both the incentives for bribery and the willingness to admit to the activity. This generates uncertainty over which of these incentives drives an observed correlation between signing the Convention and reductions in reported bribery. We address this problem by employing a specialized survey experiment that shields respondents and reduces reporting bias. We find that after the onset of Phase 3 in 2010, when the risk of punishment under the OECD-ABC increased, firms from signatory countries reduced their actual bribery relative to their non-signatory competitors.

> *The OECD Anti-Bribery Convention (the unwieldy official name of which is the "OECD Convention on Combating Bribery of Foreign Public Officials in International Business Transactions") has proven to be a surprisingly successful international agreement—far more effective than the various regional anticorruption instruments or the U.N. Convention Against Corruption (UNCAC), and indeed far more effective than even the OECD Convention's proponents had predicted.*
>
> Matthew Stevenson (2014), Harvard Law School, writing on the Global Anti-Corruption Blog

The 1997 OECD Anti-Bribery Convention (OECD-ABC) was a landmark international convention designed to combat global corruption by pushing signatories to pass laws criminalizing bribery by their citizens and companies abroad that could be prosecuted in the signatories' domestic courts. Since its passage, the Convention has been lauded by legal experts for its influence on domestic anticorruption laws and enforcement patterns, primarily due to its peer review system (Stephan 2012, Tyler 2011, Spahn 2012, Spahn 2013, Hatchard 2013). Despite the accolades, nearly two decades after the passage of the Convention, there is very little direct evidence to answer the important question of whether the OECD-ABC has fulfilled its primary goal of reducing bribery by firms investing abroad. Scholars have documented increasing enforcement among some signatories (Heimann and Dell 2012) as well as reluctance of investors to invest in (Cuervo-Cazurrá 2008) or trade with (D'Souza 2012) suspect locations. Spencer and Gomez (2011) come the closest to a direct assessment by looking at the correlation between OECD-ABC membership and reported corruption in firm-level surveys, but they find mixed results depending on the host country and timing of data collection

Although the hypothesis is straightforward and critically important on both academic and practical grounds, evaluating the effectiveness of the OECD-ABC is complicated by three well-documented research pitfalls. First, selection into the OECD-ABC was not random. The original signatories were a collection of the most democratic and wealthy countries in the world, comprising 63.9% of global exports and 85.1% of overseas direct investment (Transparency International 2013). Second, the standard measures of corruption in international surveys of investors are subject to both social desirability bias and non-response bias that are systematically associated with signing the OECD-ABC. Since the OECD Convention raises the risk of prosecution for bribery by the signatory country (according to its home country laws), it not only reduces the willingness of investors to bribe but also reduces their willingness to answer honestly in surveys regarding

engagement in the activity (Couts and Jann 2011). Finally, the generic survey questions that are available in standard datasets are ill-suited to investigate the study of corruption because they conflate different forms of bribery as well as the timing of investor participation in these activities.

We set out to resolve these problems with a careful research design of a single host country—Vietnam—that is specifically devoted to evaluating the success of OECD-ABC. To address the first challenge, we use a differences-in-differences (diff-in-diff) estimator to analyze the change in corruption behavior between investors from signatories and non-signatories of the Convention. Our sample includes 4,361 foreign investors in Vietnam, surveyed in four waves between 2010 and 2013. 88% of these investors established operations in Vietnam between 2000 and 2013, and 56% entered after 2005. Key to our research design is an analysis of bribery behavior after the introduction of Phase 3 of the OECD-ABC, which, according to experts, marked an important shift toward greater compliance by forming working groups to perform onsite reviews of signatory countries and monitor implementation (Stevenson 2014). As Boehme and Murphy (2010, 1) put it, "Something remarkable transpired in Paris on Dec. 9, 2009—a development that should be on the radar screen of all boards of directors of multinationals." By treating the Phase 3 onsite reviews as the beginning of meaningful enforcement, we are able observe the difference in the behavior between firms from OECD countries prior to OECD implementation and afterwards. Since we focus on change in behavior, rather than the level of corruption, we can separate the effect of the OECD-ABC from the home country's attributes that are correlated with the likelihood of signing.

The diff-in-diff design, however, does not resolve the question of correlated measurement error. Using a well-publicized corruption scandal during the rollout of our survey, we show that there is a dramatic decrease in respondents' willingness to admit corruption in traditional corruption questions. To address this problem, we take advantage of a novel strategy for measuring corruption—the Unmatched Count Technique (UCT) or "list question." Using this approach in an original firm-level survey in Vietnam, we can both directly measure corrupt behavior in a number of activities and simultaneously shield respondents from the dangers of admitting to the illegal actions. This technique randomly assigns respondents into two groups. One group is given a list of non-sensitive activities and is asked to identify the total number of activities in which the

respondent's firm engaged. The second group, in addition to the non-sensitive items, receives an additional "sensitive" activity. In our context, sensitive items include infrequent activities in which firms might engage during registration or procurement, such as bribery or kickbacks on contracts. Respondents only report the *total number* of activities they engaged in during the process, without referencing any specific activities, which allows them to avoid directly admitting culpability in corruption. Afterward, a simple comparison of means between the treatment and control groups provides insights on the overall level of corruption. We follow this technique up with a two-stage estimator, developed by Blaire and Imai (2012), which allows us to assign the predicted probability of engaging in the sensitive behavior, and therefore parse out the firm and country-level attributes that are most strongly associated with corruption. Anticipating our results, we first show that our list experiment finds no differences in non-response or levels of corruption before and after the scandal that erupted during the rollout of the final wave of our survey. We interpret this as strong evidence that the empirical design allows for managers to admit bribery, as opposed to answering standardly used corruption questions.

Next, we directly examine how the bribery behavior of firms is affected by the OECD-ABC. We find evidence of high levels of corruption in registration and procurement for foreign firms, both before and after the Convention. This level of corruption is especially high in monopoly sectors and procurement. Nevertheless, we provide strong evidence that the level and growth of corruption is altered by the OECD-ABC. We find that firms from signatories had the same propensity to pay bribes as non-signatories before the implementation of Phase 3 (i.e., the enforcement stage of the OECD-ABC). However, after the onset of Phase 3 in 2010, when the risk of punishment substantively increased, firms from the OECD-ABC significantly reduced their corrupt behavior relative to their non-signatory peers. More specifically, after Phase 3, firms from the OECD-ABC countries had an eight percentage point reduction in the growth of bribery compared to firms from non-signatories.

The OECD Convention and Anti-Bribery Activity

The OECD-ABC began as an ad hoc working group in 1989, culminating in the passage of the Convention in 1997 and officially coming into force in February 1999. Countries have joined and ratified the OECD-ABC at different dates, and new signatories (including Colombia in 2013) have continued to join since its inauguration. The negotiations over the OECD-ABC were partially triggered by the United States' amendment of the 1977 U.S. Foreign Corrupt Practices Act (US-FCPA) in 1988, which required the President to begin negotiations with fellow OECD members on issues related to bribery (George et al. 2000, 495).

Two dominant motivations for the OECD-ABC have been put forward by scholars. First, the Convention expanded the jurisdiction of criminal activity beyond the host country for foreign investment because it was becoming clear that not all governments had the capacity, sophistication, or incentive to rid their investment environments of corruption (Kazmerek and Newman 2011). Second, unilateral implementation by OECD members of such anti-corruption legislation was insufficient, because corruption posed a global collective action problem (Duvanova 2007, Magnusson 2013). Although corruption had negative effects on the general investment environment, raising costs and increasing the uncertainty of doing business in some countries (Zaheer 1995; Zaheer and Mosakowski 1997; Zaheer 2002; Miller and Eden 2006; Mauro 1995; Wei 2000; Habib and Zurawicki 2002; and Cuervo-Cazurrá 2008), any one briber could benefit by winning lucrative procurement contracts, licenses, or land deals (Bliss and Di Tella 1997, Ades and Di Tella 1999, Hellman et al. 2000; Malesky et al. 2014). Thus, if a country unilaterally began to punish the activities of its investors abroad, as the United States did with the FCPA in 1977, it placed its investors at a disadvantage in competition with investors from other countries without similar restrictions (Pacini et al. 2002, Schmidt 2009, Tyler 2011).[1]

The key principle of the OECD-ABC is the passage of local laws criminalizing bribery. The OECD does not directly enforce these laws, but a Working Group monitors both the generation of anti-bribery

[1] See Argandoña (2007) for work on the UN Convention against Corruption.

legislation and the enforcement of anti-bribery laws of signatory countries.[2] The OECD-ABC was a striking departure from how many OECD countries treated bribery abroad. Although all signatories had laws restricting domestic bribery in their own countries, the high profile US-FCPA was one of the first acts that actually criminalized the corrupt behavior of companies doing business abroad. Following in this vein, the OECD-ABC "adopted an extraterritorial approach," requiring governments to pledge to criminalize bribery behavior outside of their home country (George et al. 2000: 486). Consequently, the bribery of an official abroad became a criminal act, and individuals could be directly prosecuted in home country courts for bribery behavior. The OECD-ABC provides explicit details ranging from how individual actors can be extradited to the level of information sharing required by parties in uncovering and prosecuting bribery.[3]

What has set the OECD-ABC apart from previous multilateral efforts to combat corruption is its peer review process, whereby each signatory must allow for a rigorous and intrusive dissection of its efforts by the OECD Working Group in order to comply with the Convention (Tyler 2011). In consultation with the signatory under examination, the Working Group chooses two other signatory countries to lead the examination. Israel and Finland, for example, were selected to play this role for the Phase 3 examination of South Korea. In the role of lead examiner, representatives of the two countries choose the experts who will write the preliminary report. After the issuance of the draft, all countries subject to the Convention read the reports, evaluate performance, and issue recommendations for approval. As Stevenson (2014, 1) writes, "The reports are often quite harsh, even scathing, and the political embarrassment associated with a bad review can shame governments and mobilize public opinion." Despite the embarrassment, no single country can block a report because the Working Group has adopted a "consensus minus one" standard.

Although all the reports maintain a diplomatic and formal tone, the legal language can certainly be strong and pointed. For example, here are some excerpts from the Hungary's Phase 3 Report conducted by Denmark and New Zealand:

> The Working Group notes that the number of convictions for foreign bribery remains low and considers that, in the context of companies, this may be due to difficulties in applying provisions on

[2] For individual country monitoring reports see: http://www.oecd.org/daf/anti-bribery/countryreportsontheimplementationoftheoecdanti-briberyconvention.htm.
[3] See George et al. (2000).

> the criminal liability of legal persons…The situation in Hungary as it relates to legal persons is problematic. The requirement that a natural person must be punished in order for a legal person to be prosecuted creates a significant loophole by which legal persons can escape liability (OECD 2012, 2).

Australia, despite its ranking as an active complier, was savaged by its evaluators in its Phase 3 report, which complained that Australia "has only one case that has led to foreign bribery prosecutions, out of 28 foreign bribery referrals received by the Australian Federal Police (AFP) ... this is of serious concern."[4] The report went on to cite several instances of known cases, such as substantial bribery by Crown mining in Macau.

The Peer Review of the OECD-ABC has proceeded in three phases, which countries have met at different times depending on their accession dates. During Phase 1 (the Evaluation Stage), which began in 1997 and was completed by 1999 for the original signatories, the focus was on whether legal documentation developed by the signatories met the standards set by the Convention. Since the monitoring concentrated on the wording of legal texts, Phase 1 posed very little threat to the activities of overseas multinational firms, and it is unlikely that we would observe significant changes in behavior after its onset.[5] The purpose of the Phase 2 review (the Assessment Stage), which began in 2002 with a follow up evaluation in 2005 for the original signatories, was to study whether the legal texts were being applied correctly and appropriately. Phase 2 also broadened the range of covered activities to include non-criminal procedures, which were part of the original Convention. Once again, these reports generally discussed legal implementation and therefore were unlikely to influence overseas behavior by investors.

The real teeth of the OECD-ABC were brought to bear during Phase 3 (the Enforcement Stage). Phase 3 sought to move beyond the textual legal analysis to focus specifically on whether signatory countries were living up to the spirit of the Convention by punishing malfeasance of their citizens and businesses abroad. Importantly for our research design, the Phase 3 Peer Review was initiated in 2009 with a full schedule for all signatories, running from June 2010 to June 2015.[6] Thus, even if a country was not scheduled to be evaluated until late in the schedule, it had full knowledge of when it would be evaluated at the

[4] Hoy (2014).
[5] OECD Country Monitoring (n.d.).
[6] OECD Schedule (n.d.)

beginning of 2010. This year, therefore, represents the critical shock to business behavior that we aimed to evaluate in our data.

We argue that prior to 2010 it was unclear what the final phase of the Convention would entail, especially since the extent of the monitoring surpassed some of the most optimistic predictions about it. The Phase 3 peer reviews involved systematic on-site visits to both signatory countries and the overseas locations of investors and added a shorter, more focused assessment questionnaire. Reports specifically focused on how particular cases of corruption were dealt with and punished by the signatory country (Tyler 2011).

The bite of the Phase 3 Peer Review was augmented by a companion document adopted by the signatories, called the "Recommendation of the Council for Further Combating Bribery of Foreign Public Officials in International Business Transactions," which covered 19 sections ranging from facilitation payments to procurement to internal taxation rules. Although not legally binding, the recommendations were added to the list of activities to be evaluated in Phase 3 and were thought to put the same naming and shaming pressure on signatories. Beyond the peer review, Phase 3 also added the phrase "ethics and compliance" to the concrete steps that businesses were supposed to take to meet international standards, an addition that was hailed by ethicists (Boeme and Murphy 2010). Other concrete recommendations mentioned in the publication of compliance by MNCs in their annual reports included whistleblower protections for employees, independent monitoring bodies, and consideration of granting domestic advantages (on procurement and export credit) for firms that can demonstrate high levels of compliance with the OECD-ABC.

<Insert Figure 1 here>

Transparency International (TI) (2013), which has been monitoring implementation of the Convention, provides evidence that the enforcement behavior of the signatories changed after Phase 3. At the end of 2009, the year before Phase 3 began, OECD-ABC signatories commenced 67 foreign bribery investigations, resulting in 23 cases of punishment, 16 of which were major (involving substantial fines or penalties). In 2011, the year after Phase 3 started, OECD-ABC signatories pursued 130 cases, resulting in 42 sanctions, 16 of which were major. Figure 1 provides the historical record of the major foreign bribery cases

pursued by OECD-ABC members according to TI's annual reports.[7] The gray lines chart the time series of each individual country, while the thick dark line shows the average number of major bribery cases. Clearly for active enforcers we can see sharp changes in the number of cases after 2010, leading to a slight upward change in the slope of the average number of cases. If proponents of the Convention are correct, this greater enforcement should result in a deterrent effect, leading MNCs abroad to curtail their behavior. In the firm-level analysis below, we probe this hypothesis.

H1: After the onset of Phase 3 (2010), firms from countries that signed the OECD-ABC will reduce the frequency of their bribery compared to non-signatories.

Skepticism about Convention Success

Skeptics have pointed out three theoretical reasons explaining why the OECD-ABC may not result in decreased bribery and why we might find a non-result in our statistical analysis below. In this section, we describe these reasonable criticisms as well as how we address them in our empirical design.

First, a closer look at Figure 1 reveals that most of the activity is being driven by a handful of countries.[8] A large number of other countries demonstrate flat or even declining post-Phase 3 trajectories. As the OECD Secretary-General soberly noted after touting early successes: "However, there has been little or no enforcement in over half of the Parties to the Convention" (OECD 2013, 3). Indeed, one of the major criticisms of the OECD-ABC has been its lack of power to enforce compliance with even the most basic elements of its strictures. The actual implementation of the Convention, from the passing of domestic legislation to the enforcement of bribery laws, is left to member states (Tyler 2011). Article 12 of the Convention clearly states that the OECD cannot compel a signatory to act, relying solely on the ability of the Working Group to name and shame. Thus, the OECD-ABC is an insufficient signal of active compliance.

Heiman and Dell (2012) harshly criticize the implementation of the Convention, noting so few countries graded at the highest level of "Active Enforcement" of these laws. These countries are graded as receiving a score of four on the OECD-ABC Enforcement Index by Transparency International (Heiman

[7] OECD (2014) provides additional data on the 427 corruption cases to date.
[8] In fact, these are the countries that TI calls active (US, UK, Germany, and Switzerland) and moderate enforcers (Italy, Australia, Austria, Finland), according to the number, size, and frequency of the cases prosecuted.

and Dell 2012). If there is limited home country prosecution, businesses face only trivial checks on their behavior. The remaining signatories are spread over the three other categories of enforcement, with eight countries labeled as "No enforcement" and receiving a score of one. This wide variation in compliance with the Convention, while demoralizing for proponents of the agreement, is interesting empirically. Rather, than simply asking whether signing the Convention matters, we can further probe how evidence of domestic enforcement (according to the four-point TI scale) shapes the behavior of foreign investors (Dell 2012). Thus, in our statistical analysis below, we also test the proposition that greater enforcers should see correspondingly large reductions in bribe propensity.

H2: After the onset of Phase 3 (2010), firms from countries that actively enforce the OECD-ABC will reduce the frequency of their bribery compared to non-signatories and non-active enforcers.

A second obstacle to OECD success is the role of the host country. Prosecuting bribery abroad requires both knowledge of the crime and the ability to gather evidence on the crime. Major cases filed against Siemens (settled in 2008), Walmart (for bribery in Mexico), and GlaxoSmithKline (for contracting payoffs in China) only came to light when the host countries started their own investigations and shared information with home country authorities (Lichtblau and Dougherty 2008, Barstow 2012, McDonald 2013). Host country governments can derail OECD-ABC cases if they do not allow access to investigators or if they conceal the activities because they themselves are benefitting from the bribery. Thus, in addition to variation in home country legal construction and enforcement, more noise in compliance is introduced by the wide variation in host country behavior. Fortunately, in our empirical analysis, this factor is held constant by our decision to focus only on a single country—Vietnam. The variation for our analysis is over time and across the wide spectrum of firms from different countries. In addition, Vietnam is a hard case for our analysis. For instance, over the past two decades, the country has been one of the world's largest recipients of foreign direct investment (FDI), but is also considered to be among its most corrupt—currently ranking 116 out of 175 countries. Thus, it is safe to consider Vietnam a non-active collaborator in the OECD-ABC enforcement efforts. Indeed, the Phase 3 reports reveal that zero bribery cases were forwarded by the Vietnamese authorities to the OECD Working Group.

A final contentious issue concerns the exact definition of bribery. The key principle used by the OECD-ABC is that a business cannot use bribery to gain an "improper advantage" over other firms.[9] In cases such as bidding for government contracts, improper advantage seems straightforward. For instance, if a briber is more likely to win a contract, then they likely had an improper advantage. Nevertheless, a problematic feature of the OECD-ABC, and indirectly our research design, is that one of the most common forms of bribery observed in developing countries is tacitly allowed by the Convention. More specifically, facilitation payments, or "grease money," are generally payments to expedite a process of gaining access to a good or service to which a firm is entitled, such as a registration certificates, sector-specific licenses, business premises, or other forms of documentation needed to legally operate in the home country, and these types of payments are often not explicitly covered in domestic anti-bribery laws, such as the US-FCPA (Koch 2005).

The OECD-ABC does more than turn a blind eye to these practices. In fact, they specifically permit facilitation payments by businesses. According to Argandoña (2005, 255):

> …Paragraph 9 of the official commentaries explicitly excludes "small facilitation payments" made to "induce public officials to perform their functions, such as issuing licenses or permits."

This could be especially problematic for our study of firm registration. If firms are compelled to bribe bureaucrats to speed up the process of a legitimate firm registration, it is unclear if this is really a firm gaining an "improper advantage" or simply paying a fee to expedite a service to which a firm is legally entitled.

Although the OECD has been vocal on the need to make facilitation payments illegal (Strauss 2013)—and Vietnam considers them to be illegal as well, which should technically make them illegal according to the FCPA (Nichols 2013), the OECD-ABC largely allow countries to make their own decisions on whether to criminalize facilitation payments, thereby allowing punishment for perpetrators in home country courts. According to Schemmel (2002), only ten signatories make facilitation payments illegal, and the enforcement of anti-bribery laws concerning this type of payment are significantly more lax than other forms for bribery.

[9] See George et al. (2000) for an excellent discussion.

To address this problem, we also analyze two additional types of bribery that are clearly more severe than facilitation payments: bribery to allow for discretionary access to restricted sectors and bribery for procurement contracts. These types of bribery are against the spirit of the OECD-ABC and have been the subject of numerous reports and initiatives.[10] In the official comments of the agreement, the OECD clarified that bribery during procurement was outlawed, "whether or not the firm was the most qualified bidder."[11] This egregious form of bribery is one of the most obviously damaging types of corruption because it often involves huge sums of money and leads to the inefficient use of state resources since less qualified companies are awarded contracts to offer critical services and goods.

Empirically Evaluating the OECD-ABC

The empirical evidence is mixed regarding the effectiveness of laws against bribery in home countries on bribery behavior of their firms abroad. Hines (1995) finds that the US-FCPA had a major negative impact on U.S. business, while Graham (1984) finds that the US-FCPA had no impact on the market share of U.S. investors in corrupt countries. There is evidence that the OECD-ABC leads foreign actors to curtail their behavior in suspect environments, including reducing FDI (Cuervo-Cazurrá 2008) and exports (D'Souza 2012) into highly corrupt countries. In the only study of the direct influence of the OECD-ABC on corruption, Spencer and Gomez (2011) demonstrate mixed results depending on where the survey was collected, finding evidence in Ghana but not in Eastern Europe. They attribute the divergence to the fact that the survey in Eastern Europe was conducted during the OECD-ABC ratification process and therefore had no bite. In a study very relevant for our work, Kim and Barone (1981) survey members of the Academy of International Business on the US-FCPA, finding that the act has a very limited effect on bribery, but puts U.S. firms at a competitive disadvantage relative to their less hand-cuffed competitors.

There are important reasons for the mixed conclusions. Research on the OECD-ABC is dogged by three well-documented research pitfalls. First, selection into the OECD-ABC is not random. The original signatories were a collection of the most democratic and wealthy countries in the world, which was no

[10] See OECD (2007).
[11] OECD (2011,14).

accident. Original negotiations took place among OECD members, known colloquially as the "club of the rich." Firms from these wealthy countries were the most likely to be competing for opportunities abroad. However, because of the selection process, it is difficult to empirically separate the effects of signing the OECD-ABC on multinational corruption behavior from other features of the original signatories (e.g., wealth, democracy, lower home country corruption, distance from emerging markets, etc.) that might also reduce corruption (Fisman and Miguel 2007).[12] Worse yet, all of these features are highly correlated, so it is impossible to pinpoint which of the home country features is actually doing the work. Matching estimators are not helpful in resolving this problem because the region of common support (i.e., the overlap between OECD-ABC signatories and non-signatories on these key dimensions) is too small to provoke confidence in the procedure.

Second, the standard measures of corruption in international surveys of investors are subject to both social desirability bias and non-response bias. The strength of these biases is not random, but instead strongly associated with signing the OECD-ABC. Since the OECD Convention raises the risk of prosecution bribery by investors from the signatory country (according to their home country laws), it not only reduces the willingness to bribe but also reduces the willingness to provide honest answers in surveys regarding engagement in these activities, which presents an extreme example of social desirability bias (Couts and Jann 2011). As we show below, because of the fear of home country prosecution, firms from signatory countries are systematically less likely to report bribery and more likely to abstain from answering corruption questions. Although, it is worth noting that poor implementation in some countries indicates that the true probability of home country prosecution is low. Whatever the true probability, however, it is higher than the zero probability faced by investors from non-signatories. As a result, analysts cannot determine whether correlations between OECD-ABC membership and reduced bribery are the result of a real causal relationship, or simply a correlation between signatory status and measurement error in the dependent variable.

[12] See Online Appendix A1 for a formal balance test detailing the wide range of confounders that are associated with OECD membership.

Finally, generic survey questions about corruption (which we look at below), though commonly available, are ill-suited to investigate the study of corruption, because they conflate the different forms of bribery discussed above. In many of the standard questions, it is not clear whether firm answers refer to facilitation payments or more pernicious forms of corruption, such as bribery to obtain valuable licenses or government procurement.

The Research Setting: Investment Liberalization and Bribery in Vietnam

To obtain more accurate measures of corruption and avoid noise caused by host country cooperation, we focus on a single FDI recipient: Vietnam. Vietnam has emerged as one of the most successful developing countries in attracting FDI across a number of sectors. Although liberalization in the 1980s and 1990s attracted large numbers of investors, Vietnam's entry into the WTO in 2006 has been the highpoint of attracting FDI. After entering the WTO, FDI inflows totaled a staggering 10% of GDP (World Bank 2010). Thus studying Vietnam provides us with the opportunity to examine foreign investment in a developing country that includes a wide range of investors.

Although many advanced industrialized countries have joined the Convention, the major investors in Vietnam consist of both firms from signatory and non-signatory countries. While we cannot evaluate the counterfactual of which investors would have entered Vietnam in the absence of either corruption or the OECD-ABC, we can explore the sectoral allocation of bribers and investments by firms from countries that are party to the OECD-ABC and those that are not.

Vietnam's signing of a bilateral trade agreement with the United States in 2000 and accession into the WTO in 2006 led to a series of reforms that vary across sectors in their implementation over time. Using original survey data of the actual incidence of bribery, we are able to document how the investors' country of origin shapes bribery behavior for both firm registration and securing procurement contracts. In this section, we provide a clear application of this novel measurement of corruption by drawing on four waves of the Vietnam Provincial Competitiveness Index (PCI) survey.[13] This survey paints a relatively comprehensive

[13] Methodological details and background on the survey can be found at www.pcivietnam.org.

picture of domestic and foreign firms in Vietnam's 63 provinces with high response rates of 30% for domestic firms and 25% for foreign firms.[14] The PCI research team ensures that each year this survey is representative of the population of firms in Vietnam (VCCI 2013). Most important for this study, of the 10,437 active foreign firms in Vietnam, 46% of these firms (4,821) are in the sample.

Foreign investment in Vietnam is largely dominated by firms from East Asia. The five largest investors in national data and in the PCI sample include Taiwan (18.41%), South Korea (15.56%), Japan (15.38%), China (4.83%), and Singapore (3.96%). The sample also includes 560 investors from the EU, 176 investors from the US, and 61 from Australia. Although this concentration of investment from East Asia may seem like a liability for this study, two of the top five countries (Japan and South Korea) are both signatories of the OECD-ABC. The other top Asian investors are not. Overall, 42% of foreign investors in Vietnam are subject to the OECD-ABC, providing comparison groups that are relatively equal in size. Thus, our study provides the added benefit of a large number of investors from the same region along with considerable variation in signatories to the OECD-ABC.

Despite Vietnam's success in attracting FDI and increasing liberalization over the past decade, Vietnam remains a difficult environment for foreign investors to its complex FDI policies. Vietnam's 1987 Foreign Investment Law, the first major reform regarding FDI, led to the liberalization of many sectors. Some sectors, known as "Group A" projects, however, are formally open to entry by foreign firms, but only after special approval from the Prime Minister's office. In the 1990s, the licensing of FDI projects was decentralized to the provinces, yet the requirement for a special license remained. These special requirements covered over thirty different economic sectors, ranging from insurance, transportation (i.e., air, land, and sea), real estate, telecommunications, legal and accounting, and the motion picture industry.[15]

Many of these restrictions were scheduled to have been lifted by Vietnam's entry into the WTO in 2007, but a large number remain in place because domestic laws implementing the WTO agreements have not been written. More importantly, the variation across sectors in the ability of foreign firms to enter and the different timing of these restrictions make Vietnam an excellent case for us to examine bribery by foreign

[14] See White and Luo (2006) for a discussion of response rates in firm level surveys.
[15] We provide details on these sector restrictions in the Online Appendix A2.

firms during entry. Most importantly for our design, many of these liberalization decisions were made either in accordance with signing a preferential trade agreement with the United States in 2000 or were associated with WTO entry. In short, despite lobbying by many domestic firms, Vietnam acquiesced in numerous cases through the lifting of restrictions, thereby opening sectors to foreign investment without special approval.

Equally important for our research design is that foreign investors, with the approval of the Prime Minister's office, managed to enter into all of these sectors, even during the periods with restricted entry. Thus government officials served as gatekeepers for FDI entry, but some foreign firms succeeded in gaining entry to almost every sector in the time period under investigation.

Because Group A sectors in Vietnam require special registration approval for entry, foreign firms must apply for access to these "restricted" sectors and bureaucrats have the discretionary power to allow or deny entry. The special licenses to enter these sectors are not facilitation payments, since they are not available to all firms, and specifically limit access to losers and later firms in the cue. In this sense, they operate far more like procurement contracts, granting a foreign business exclusive access to a revenue stream without significant competition in the same way a country might be granted exclusive rights for natural resource extraction. Correspondingly, work has shown that sectors where investors need special permission to enter Vietnam had 2.4% greater industrial concentration and 13% higher profit margins (Malesky et al. 2014). The key reason is that these sectors provide rents for firms and allow the gatekeepers of these sectors to demand bribes in order for firms to enter (Malesky et al. 2014). It should come as no surprise, therefore, that these sectors are also associated with a higher propensity to pay bribes.[16]

For Group A sectors, simply using bribery as a facilitation payment is unlikely; rather, firms are literally buying access into monopoly rents.[17] In fact, a deep theoretical literature has shown how the availability of rents shapes bribery behavior (Bliss and Di Tella 1997, Ades and Di Tella 1999, Djankov et al. 2002).[18] Our hypotheses outlined above focus on the impact of the OECD-ABC on bribes. We believe that

[16] For example, Malesky et al. 2014 showed that sectors in Vietnam that restricted entry to foreign firms have much higher levels of industry concentration and profitability. Indeed, they find that 39.4% of foreign firms provided bribes to enter these sectors.
[17] D'Souza (2012, 74-75) specifically notes that the Convention "pertains to payments that afford firms an unfair or unwarranted advantage in, for example, securing a government contract, acquiring an import permit, or *starting a business*."
[18] For additional firm-level studies of bribery for rent seeking see: Svensson 2003; Clarke and Xu 2004; Martin et al. 2007; Lee et al. 2010; Jeong and Weiner 2012.

this analysis of bribery in restricted sectors, as opposed to facilitation payments, is an important test of these hypotheses.

A Standard Analysis of Corruption

Before delving into our suggested methodological approach, it is useful to ask how traditional corruption questions perform in the measurement of corruption in Vietnam. To do this, we utilize two questions from the PCI survey, which directly replicated two standard corruption measures used in the World Bank's Enterprise Survey[19] and are employed in the World Bank's Control of Corruption index.[20] The first question simply asks firms to record whether it is common for firms like them to pay bribes. The second question asks firms to record the share of revenue that they pay in bribes each year.[21] We present both questions in the box below.

Note that both questions share three common features that are standard in surveys measuring corruption. First, they ask firms to project away from their own culpability in the corrupt activity. This is thought to protect respondents because they are not admitting culpability but only talking about "others." The conceit is that the respondent will actually answer about their own activity. One cost of this approach, however, is that it can lead to over-reporting, as respondents report a "common" activity that they have not directly observed. Second, the questions are general in nature, asking the respondent to reflect and account for all the types of corruption encountered that year. Thus, we do not know what activities generated the bribery, whether it could be treated as a facilitation payment, or whether it could be connected to changes in the dependent variable, which would help in specifying useful policy changes. Instead, only very general changes in the legal environment can be detected. Third, the questions ask firms to comment on the contemporary level of bribery in their host country. This is a reasonable choice as the goal is to reflect the

[19] For documentation, please compare question j7a and j7b on the World Bank's Enterprise Survey http://www.enterprisesurveys.org/~/media/GIAWB/EnterpriseSurveys/Documents/Methodology/Questionnaire-Manual.pdf with question e11 and e12 in the PCI-FDI survey <http://eng.pcivietnam.org/pci-questionnaire/questionnaire-2013-a299.html>. Even the values of the questions are retained to facilitate comparability.

[20] To see their location in the World Bank's Control of Corruption Index see the label BPS in the Governance Codebook <http://info.worldbank.org/governance/wgi/index.aspx#doc>.

[21] As is standard in Vietnamese surveys, the PCI uses the colloquial "unofficial" or "informal" payments to denote bribes because these terms are less sensitive, used widely in the country, and understood broadly by respondents.

current environment, and progress in corruption can be made by comparing iterations of the survey over time. However, this strategy comes at a cost because the surveys do not pinpoint when these firms actually experienced the corruption they are discussing. Most corruption takes place as businesses engage in specific activities, such as registering, acquiring an investment license, obtaining land, or bidding for government procurement contracts. Although all firms answer the survey at the same time, the length of time they have been in the country varies considerably, meaning the years in which they were exposed to corruption (especially those connected to business entry) will also vary considerably. An negative consequence of the generality therefore is that connecting policy change with changes in corruption is not possible because we cannot truly tell whether the firm's answer is capturing previous experience with corruption.

1. Do you **agree** with this statement? "It is common for firms in my line of business to have to pay some irregular 'additional unofficial payments.'
1. ❑ Yes
0. ❑ No

2. On average, **what percentage of income** do firms in your line of business typically pay per annum in **unofficial payments** to public officials?

1. ❑ 0%	5. ❑ Less than 1%
2. ❑ From 1% to less than 2%	6. ❑ From 10% to less than 20%
3. ❑ From 2% to less than 5%	7. ❑ From 20% to less than 30%
4. ❑ From 5% to less than 10%	8. ❑ Over 30%

The combined effects of these three reasonable choices in designing standard corruption questions is that we cannot tell whether the OECD-ABC has led to a reduction in corruption; we can only tell whether OECD-ABC signatories are less likely to report corruption. Although less exciting, observing this correlation is a critical starting point for our analysis. Figure 2 reveals a 3.4% lower propensity of firms from OECD-ABC signatories to indicate "yes" to the first question and about a 0.23 shift down on the eight-point bribery scale, which corresponds to a 0.5 percentage point decrease in the amount of income devoted to bribes, in terms of the second question.

<Insert Figure 2 about Here>

As we noted above, the simple bivariate analysis is insufficient because signatory status is associated with numerous features of the home countries. OECD-ABC signatories possess greater wealth, human

development, democracy, legal institutions, veto points, press freedom, and performance among multinational firms.[22] Obviously, we cannot control for all of these features without experiencing severe multicollinearity; however, we do test to see if our results are robust to a parsimonious set of firm- and country-level controls. For space considerations, we focus only on bribes/revenue, but the substantive results also hold in terms of paying any bribe at all. We control for a matrix of firm-attributes (e.g., labor size, two-digit industrial sector, 100% foreign owned versus joint ventures, and whether the firm is in located in an industrial zone) as well as home country attributes (e.g., logged GDP per capita and the level of corruption).[23] Table 1, Model 1 presents the bivariate relationship, Model 2 adds survey year and digit ISIC fixed effects, Model 3 adds the firm-level controls, Model 4 adds country-level controls, and Model 5 replaces signatory status with the level of Convention enforcement in the home country.

<Insert Table 1 about Here>

The results show that the correlation with OECD-ABC signatory status remains significant in all specifications and is even strengthened by the level of Convention enforcement in the home country (Model 5). Each one point increase in enforcement is associated with a 0.08 percentage point reduction in the share of bribery over revenue, even when controlling for the overall level of home country corruption.

Some analyses of bribery might stop here. A closer inspection of the data, however, concerns us greatly about how firms responded to these standard bribery questions. First of all, Models 6 and 7 present the results from just the 2012 survey year. Intriguingly, the strength of the relationship between OECD-ABC and bribery spiked significantly during that year, nearly doubling the coefficient sizes in the full sample. What could account for the enormous success of the OECD-ABC in this specific year? Second, item non-response to the corruption question averages about 30% over all four years, indicating the potential for a significant bias posed by who decided to answer the surveys. Third, the distribution of responses across question two is not normal, but is highly skewed toward very low levels of reporting bribe amounts. This raises concerns, but

[22] See online Appendix A3 for a full balance table.
[23] In alternative specifications, we used alternative measures of democracy and distance from Vietnam in kilometers with little change in the substantive findings.

the implications for inferences about corruption are not obvious. In normal times, it is difficult to evaluate if individuals are providing non-responses or false responses to bribery questions for fear of incrimination.

In the middle of fielding our 2012 PCI survey, however, a natural experiment emerged that allows us to tease out the true level of reticent response to the standard survey questions. On August 20, 2012, the chairman of Asia Commercial Bank (ACB), Nguyen Duc Kien, was arrested in a major corruption scandal, sending shock waves through the business community (Robinson and Bland 2012). We use this shock to provide a stress test (technically, a regression discontinuity design (RDD)), where we can evaluate manager willingness to answer direct questions about bribery in the wake of this scandal.

The details of the scandal are well documented in international media (Bloomberg News 2012). Indeed, the media coverage itself may have contributed to non-response bias, as foreign investors were reminded that bribery scandals might become known to their home country governments. Critically for our research, the arrest of the head of ACB, a firm with a fantastic reputation, numerous foreign clients, and the backing of multiple foreign equity investors, not only rocked confidence in the company, it led to an immediate 10% decline in the Ho Chi Minh stock market. This major sell-off in the stock market allows us to pin point the exact timing of when markets (and managers) became aware of the seriousness of the scandal.[24] This date, August 20, 2012, was during the midpoint of the distribution the 2012 PCI-FDI, with almost 50% responses before the scandal and 50% responses after the scandal. Timing of the PCI mail-out is randomized, so the respondents receiving the instrument before and after the scandal are balanced on other attributes that could shape bribery behavior (e.g., firms' age, size, sector, and CEO background).[25]

Did this bribery scandal lead to a major change in how managers answered these direct questions on corruption? To test this proposition we regressed item non-response (*nr*)[26] on the bribe size question (#2 above) on the multiplicative interaction of two terms (1) whether the firm is a signatory of the OECD-ABC (*OECD*) and (2) whether the survey was distributed before or after the ACB arrest (*AfterACB*). To address

[24] To identify the exact date, VCCI 2012 uses a statistical method called "change-point analysis." See the 2012 PCI Report (Chapter 4, p. 61) and our Online Appendix A4 for a picture of the drop.
[25] Batches of surveys are mailed out randomly and research assistants randomly call managers as a reminder to fill out the survey. See VCCI 2012, p.62 for more details.
[26] Item non-response means that managers that filled out the survey but did not answer the individual corruption question.

potential omitted variable bias, we control for the same matrix of firm and country attributes used above. Full regression results are available in Table 3.

$$nr_i = \beta_0 + \beta_1 OECD_i + \beta_2 AfterACB_i + \beta_3 OECD * AfterACB_i + FX_i + CX_i + e$$

The left panel of Figure 2 presents the results of this operation, where we graph the predicted probability of non-response over the date in which the survey was answered (measured by the days before and after the ACB scandal broke). The graph clearly shows that before the scandal the predicted item non-response was already relatively high (about 21%), but there was no statistical difference between investors from OECD-ABC and non-OECD-ABC signatories. After the crisis, however, the two groups sharply diverge with the average non-response among OECD-ABC signatories spiking to 39% while the non-OECD-ABC respondents remain level. This result illustrates the clear dilemma in interpreting less reporting of bribery by firms from OECD-ABC signatories as evidence of less corruption. If bribing firms were the most reluctant to answer a direct bribery question honestly, because they were worried about criminal penalties, the decision of OECD-ABC respondents not to answer would lead to an apparent lower bribery share for that group. In other words, non-response bias is the far more likely answer to why OECD-ABC firms appear to have lower levels of bribery than their non-OECD-ABC competitors.

<Insert Figure 3 and Table 3 about Here]

A New Research Design for Evaluating OECD-ABD Effectiveness

Our discovery above that social desirability and non-response bias among OECD-ABC signatories is directly biasing in favor of research designs trying to measure the Convention's effectiveness is not new. The use of perceptions of corruption rather than actual incidence of corruption has been widely criticized (Treisman 2007, Olken 2009). There is considerably evidence that firms are reluctant to share information on their direct payments to politicians for fear of legal or political reprisals (Knack 2006, Seligson 2006, Kraay and Murrel 2013). To mitigate these concerns, scholars have been increasingly turning to alternative ways to measure corruption rather than standard surveys. The fact that the OECD-ABC raises the potential for domestic prosecution of bribery abroad suggests that firms must avoid openly admitting to engaging in

corruption, which adds to an already long list of concerns about the measurement of corruption. Both Treisman (2007) and Olken (2009) find very little correlation between perceptions of bribery and the actual incidences of bribery.

The List Approach to Corruption Analysis

To avoid this bias, our approach directly asks respondents about their experience, while shielding them from incriminating themselves or being subject to reprisal for answering sensitive questions about corruption, thereby reducing downward bias in corruption associated with the OECD-ABC. We designed the PCI survey to include a question that utilizes the UCT, which is also known as a "list question" (Ahart and Sackett 2004).

Evidence suggests that list questions are easy for respondents to understand and outperform other techniques in their ability to elicit sensitive answers from respondents (Coutts and Jann 2011).[27] This is done by providing respondents with the ability to plausibly deny answering yes to the sensitive questions. As noted earlier, this technique has been applied to a number of substantive questions in political science. In our context, a respondent can "admit" to bribery without fear that this information can be used against the manager or firm. To get a sense of how well this is accomplished, in the right hand panel of Figure 2, we replicated our ACB experimental analysis on the UCT question about bribing at registration, which wasalso used in the survey. Two conclusions stand out in the graph. First, item non-response with the UCT is half the size (11%) of the standard question. Second, there is no difference between OECD-ABC and non-OECD-ABC firms before and after the ACB revelations.

The benefits of the UCT are achieved by separating respondents, in our case firms, into two groups that through randomization are equal in terms of all observable characteristics. One group, that we call our "control group" receives a list of non-sensitive items and is asked to indicate how many of these items the

[27] An alternative strategy is to use the randomized response technique (RRT), where respondents are asked to flip a coin (or another equivalent is observing the last digit in a dollar's serial code). They are then asked to answer "yes" if that is the answer to the coin shows heads. The respondent is shielded from culpability, as the enumerator cannot ascertain the true reason for the "yes" response. What the enumerator does know, however, is that the probability of a heads is 50%, so any deviations above 50% are the share of respondents engaging in the sensitive activity (see Kraay and Murrell 2013). Coutts and Jann (2011) find that this technique is more difficult for respondents to understand.

respondent has engaged in. In our survey, we ask firms about their experience with registration and procurement.[28] Respondents are instructed to indicate the total number of activities that they engaged in, but not to indicate their participation in any particular activity. In other words, respondents answer 0, 1, 2, or 3 rather than checking off boxes next to the specific activities in which they participated.

The other half of our sample, our "treatment group," receives the same list, but with one additional sensitive activity. In our UCT question below, the sensitive item is activity three. Respondents are given the same instructions: "Provide us a number, but do not indicate any of the individual activities that the firm or manager engaged in." Respondents then simply answer 0, 1, 2, 3, or 4.

Notice that the treatment group has one more item than the control group, which is the crux of the experiment. If all of the respondents in the treatment group engaged in bribes, we would expect that the mean response of the treatment group to be one point higher than that of the control group. Conversely, if no firms paid bribes, the means for the control and treatment group should be the same.

UCT Question 1: Please take a look at the following list of common activities that firms engage in to expedite the steps needed to receive their investment license/registration certificate. How many of the activities did you engage in when fulfilling any of the business registration activities listed previously?

1. Followed procedures for business license on website.
2. Hired a local consulting/law firm to obtain the license for the firm for you.
3. *Paid informal charge to expedite procedures.*
   (Only Available on Form B of the Survey)
4. Looked for a domestic partner who was already registered.

This question was included in all four PCI-FDI surveys between 2010 and 2013 that were mailed out to firms in both English and Vietnamese. There is excellent balance across the control and treatment groups, mitigating concerns that differences between the groups is attributable to differences in the sub-samples.[29] Another concern is that if these activities are too frequent (everyone is answering at the maximum) or too rare (most responses are zero), respondent answers on the sensitive question are not effectively shielded.

[28] Question C6 in the PCI-FDI survey, shown in the box below.
[29] See Online Appendix A3 for details.

Luckily our survey indicates that most firms answer one or two items, and few are near the floor or the ceiling.[30]

One final concern is that our survey includes four years, but some of the firms registered prior to our first survey in 2010. Although the majority of our firms have registered within the past five years (62%), a small number of firms registered as long as fifteen years prior to the fielding of our survey. Can we expect that these managers remember bribes that took place so long ago? Are these managers even still employed with the firm?

Our survey construction mitigates these concerns as well as any biased measurement error. First, we include a clear and simple factual question on whether or not a firm paid a bribe at the point of registration, rather than details on the amount of the bribe. This requires very limited recall from managers. Second, including additional noise (limited ability to recall for firms that registered many years ago) should increase standard errors but not bias the results. As noted above, we have considerable over time variation in the sectors that are restricted and unrestricted. Although this does generate some noise in our data, this only makes our job of finding significant differences between the control and treatment groups more difficult.

In addition to bribery at registration, the PCI also asks firms about bribery during government procurement—though this applies to a much smaller subset of respondents.

> **UCT Question 2:** If your firm competed for business with a government official, please look at the following list of common activities firms engage in to make their goods or services more attractive to government clients. Please do not answer about any one of these activities specifically; we are only interested in the TOTAL NUMBER you may have utilized to win government business. How many of the below activities did you engage in when fulfilling business registration or licensing activities?
>
> 1. Dropped off pamphlets or fliers at government offices advertising your goods or services.
> 2. Opened your business or a branch of your business near government offices in order to be nearer to the decision-makers.
> 3. *Paid a "commission" to a government official to ensure that your business won the contract, he would receive a small percentage. [Only on Form A]*
> 4. Attended government functions or meetings in order to meet officials and make them aware of your goods or services

[30] See Malesky et al. (2014) for details.

UCT Experiment Results

To first analyze the level of bribery during registration, we present a simple difference-in-means between the number of activities completed in the treatment versus the control groups in Table 4. As the first two rows of the table show, treatment firms engaged in 1.595 activities, while the control group engaged in 1.403 activities. These means are significantly different, indicating the success of the experiment. More specifically subtracting the control from treatment averages, we find that on average, 19.2% of foreign firms engaged in bribery when entering the Vietnamese market.

<Insert Table 4 about Here>

Although uncovering bribery by foreign firms is interesting, our key test is how OECD-ABC signatories fare relative to non-signatories. In the next three panels, we disaggregate the analysis between OECD-ABC signatory and non-signatory countries. Consistent with our hypothesis, the differences between the two groups are non-significant in aggregate before the onset of Phase 3. However, after Phase 3, a huge gap opens up between firms from signatory and non-signatory countries. While firms from OECD-ABC signatory countries continue to bribe at about the same frequency as before Phase 3 (around 22%), firms from non-signatories more than doubled their bribe frequency (from 16.7% to nearly 44%).

The simple difference-in-means is suggestive of our hypotheses, yet we are leaning heavily on the representativeness of the comparisons between groups. Are we sure that firms from non-signatory countries are investing in the same sectors or types of operations? In short, it is possible that these results suffer from omitted variable bias, which can be mitigated through multivariate regression.[31] To control for potential confounders within the UCT framework, we utilize a two-stage estimation model developed by Blaire and Imai (2012) called LIST. This method uses a set of covariates to model non-sensitive responses in the control group and then uses this model to estimate responses for the treatment group. The process involves

[31] OECD-ABC signatories are not randomly assigned. The countries that have signed are significantly richer, more democratic, and more likely to be in Europe or North America. Moreover, OECD-ABC businesses are slightly smaller in their initial capital sizes and more likely to be in manufacturing industries, rather than services or construction. We add control variables to address the main differences in initial starting status between firms from OECD-ABC signatories and those that are not.

fitting a model to describe the control group, then using the estimated coefficients to predict new values for the treated group, as described below.

$$Y_i = f(X_i\gamma) + T_i(X_i\delta) + \varepsilon_i, where:$$

$\cdot Y_i$: response variable (total number of activities),

$\cdot T_i$: treatment variable (received survey with sensitive item),

$\cdot X_i$: matrix of covariates,

$\cdot f(X_i\gamma)$: model for non-sensitive items (negative binomal regression),

$\cdot g(X_i\delta)$: model for sensitive items (non-linear least squares).

We fit the $f(X_i\gamma)$ model to the control group in the first stage. From this we obtain the relationship between the response to the non-sensitive questions and each independent variable ($\hat{\gamma}$). Then we fit the $g(X_i\delta)$ model in the second stage using non-linear least squares (NLS) in models without fixed effects and linear estimation in models using sector fixed effects in order to avoid Nickell bias (Nickell 1981). Then after subtracting $f(X_i\hat{\gamma})$ from Y_i we have a measure for the relationship between participating in the sensitive behavior and each independent variable ($\hat{\delta}$).[32]

Model Specification

Using the UCT helps limit the dangers of non-response and social desirability. In addition to measurement error, however, a key issue in the naïve analysis above was the potential omitted variable bias that might be associated with OECD-ABC signatory status. Because so many factors correlate strongly with membership, causal inference is nearly hopeless in a cross-sectional model. To address this, we employ a diff-in-diff estimator, which assesses the change in the behavior of firms from OECD signatories before and after the onset of the Phase 3 implementation stage. Focusing on Phase 3 has practical, empirical, and theoretical benefits. Practically, only 549 firms (229 from OECD-ABC signatories) were registered before 1997, limiting precision about the pre-OECD-ABC environment. Empirically, however, even if more firms entered before 1997, using it as the cut-off would still be risky due to recall and survival bias. Remembering activities that

[32] Standard errors are clustered by country and are calculated using bootstrapping with 1,000 replications.

took place nearly two decades ago would be difficult under normal circumstances, and this is made even more challenging due to the fact that the original country manager may have left. Survival bias enters as well since firms that have remained in Vietnam since 1997 are part of a unique group of operations that have successfully navigated the Vietnamese environment for two decades, and that success undoubtedly colors their views of governance.[33] Theoretically, the extant literature makes clear that Phase 3 posed a unique structural break in home country implementation as well as firm responsibility that should have had an observable effect on firm behavior.

Returning to the design, we expect that *g*, the predicted proportion of firms paying bribes, is determined by the following equation, where *i* is an index of firms and *t* indexes the year they completed registration activities. C is a matrix of both time-variant control variables at both the country and firm level.

$$g_{it} = \delta_0 + \delta_1 OECD_{it} + \delta_2 Phase3_{it} + \delta_3 OECD_{it} * Phase3_{it} + FX_i + C_{it} + \varepsilon_{it}$$

The key feature of the diff-in-diff model is that we can separate the structural features of OECD signature status from the change caused by Phase 3. This can be seen directly in the formula. The coefficient δ_1 provides the effect of OECD-ABC member prior to the onset of Phase 3 in 2010, and δ_2 provides the change in corruption since 2010 in the non-signatory group. δ_3 is the key parameter of interest, as it provides the effect of OECD-ABC membership on bribery after Phase 3 came into force.

Since we are using a two-stage, non-linear estimation strategy and our key causal variable is not exogenously assigned, it is crucial that we demonstrate that our results both hold in the most parsimonious model and are robust to changes in specification. This is the strategy we adopt in Table 4 using the LIST methodology outlined above, where we present the simple relationship and then try our best to disprove it.[34] Note that our sample size is halved because it is a two-stage model, where we first estimate the number of non-sensitive items in the control group, and then use those estimates to calculate bribery in the treatment group in the second stage. Thus, our *n* only reflects the observations in the treatment group.[35] In Model 1,

[33] To ensure that our results are not caused by recall bias resulting from firms that registered many years earlier or from a particular era of regulatory development, we restrict the sample to firms that registered after 2005.
[34] Online Appendix A6 provides descriptive statistics for all variables used in our regression analysis
[35] To preserve space, we only present the bribery results, although they will be made available with our replication materials.

we present a model with no controls, showing that our results correctly recover the difference-in-means estimate presented in Table 4. We find that 19.2% of firms pay bribes in our sample.

We begin our analysis in Model 2 of Table 4 by assessing the interaction of *OECD* and *Phase 3*. Since bribe propensity can differ dramatically across sectors, we introduce two-digit ISIC sector fixed effects in Model 3. Model 4 introduces the exact same firm-level confounders used above, and Model 5 adds in commonly used country-level confounders (e.g., GDP per capita, distance from Vietnam, home country corruption, and level of democracy). As noted in our theory, one contentious issue is the domestic enforcement of these conventions. To assess the effect of enforcement in Model 6, we use the four-point Heiman and Gill (2012) coding of domestic enforcement, ranging from no enforcement (1) to full enforcement (4).

Focusing on the fully-specified model in Model 5, we find strong support for the notion that Phase 3 implementation has important effects on reducing bribery in OECD-ABC signatories. Looking at the first coefficient in the table (δ_2), we see that bribe frequency increased by 35 percentage points since 2010 among non-signatories. The second coefficient (δ_1) shows that OECD-ABC signatories were significantly less corrupt (about 16 percentage points) than non-signatories prior to the onset of Phase 3. This effect should be treated with caution because it is not robustly significant across model specifications. Moreover, severe multicollinearity means it is not clear whether this is due to the Convention or unobserved features of the signatories. The coefficient on the interaction (δ_3) is the critical parameter in our analysis, providing the change since 2010 in OECD-ABC signatories: a 26 percentage point reduction in bribery. However, it is important to notice that this coefficient does not fully offset the coefficient on Phase 3 alone (δ_1), which indicates that corruption has increased slightly among signatories, but far less than among non-signatories.

To make sense of these results, the northwest panel of Figure 4 plots the predicted and marginal effects from the interaction. We can see that prior to Phase 3 the predicted probability of bribery was 5.7% (represented in the graph by the light diamonds) among signatories and 22% among non-signatories (dark dots) after controlling for covariates. Overlapping confidence intervals, however, indicate that these levels were statistically indistinguishable. After 2010, as the Vietnamese economy boomed and investors sought

new opportunities created by WTO entry, non-signatories increased their bribery dramatically, reaching a predicted probability of 57%. Vu Quang Viet, a leading Vietnamese economic analyst, summarized his view of what happened as a process of: "…opening up the economy outwardly and generating much more wealth, thus offering more spoils for abuse and bribery which have reached an unprecedented scale under the current regime" (Viet 2010, 17). By stark contrast, firms from signatories have a predicted bribery of 15.7% after Phase 3, which is not significantly different from the pre-Phase 3 period. Thus, it is clear that while Phase 3 was not successful in eliminating bribery, it does show that during a period of high growth in the Vietnamese economy along with lucrative opportunities for malfeasance, the OECD-ABC appears to have significantly restrained growth in bribery.

<Figure 4 about Here>

Applying the same analysis to enforcement in the northeast panel, we find that variations in enforcement made little difference prior to Phase 3, when the Convention had very limited teeth. Statistically, there is no difference between those with some level of enforcement (3 and 4 on the TI scale) and those with none. The change rate, however, is statistically significant. OECD-ABC countries, which were willing to enforce, saw an eight percentage point reduction in the growth of corruption after the onset of Phase 3.

Other variables also show up as consistently significant and sizable. Large firms appear to bribe less, although the effects are not robust across specification. 100% foreign owned firms are 11% less likely than joint ventures to offer bribes in order to enter Vietnam, which confirms the Spencer and Gomez (2011) finding that a key problem is foreign partners and provides tentative evidence for the benign effects of Western corporate governance (Sandholtz and Gray 2003). As expected, home country corruption matters greatly. A one point movement on the CPI index (i.e., being categorized as less corrupt) reduces bribe frequency by about 13 percentage points. Finally, firms from richer countries (measured by GDP per capita) have bribe frequencies that are about 30 percentage points higher.

Our results provide strong evidence that both signing the OECD-ABC and enacting domestic legislation consistent with the Convention has been effective in reducing the growth of bribery relative to non-signatories. Although, we find signatories are marginally *more* likely to bribe after Phase 3 than before.

Our research design cannot account for the many factors that may be driving bribery behavior. Our main test is the comparison of how the OECD-ABC affects the *relative* bribery behavior of managers. On this score, our results are clear. The difference between OECD-ABC signatories and non-signatories first becomes relevant after Phase 3. After Phase 3, we observe OECD-ABC signatories bribing at much lower levels than non-signatories.

As outlined in our theory section, our question on bribery during registration could be confounding facilitation payments, which are consistent with the Convention, with other forms of bribery that are clearly deemed illegal by the Convention, e.g., bribes to enter into "restricted" sectors and bribes during procurement. In Models 7–10 of Table 4, we present results limiting our analysis to entry into restricted sectors. In Table 5, we present our results on bribery during procurement, limiting the analysis to the year the firm competed for a procurement contract.[36]

The southwest panel of Figure 4 presents the predicted and marginal effects of the model using only restricted sectors. As predicted by H3, we see an even more striking effect in areas that cannot be legally construed as facilitation payments. While predicted bribery in restricted sectors grows among non-signatories from 65% to 87%, predicted bribery among signatories declines from 27% to slightly less than 8%.

<Table 5 about Here>

In Table 5, we present an analysis of bribery during procurement, limiting our sample to only firms active in government procurement contracts. Results from this analysis are more tentative because very few foreign firms in Vietnam actually engage in government contracting. The southeast panel of Figure 4 presents the marginal effects of the fully-specified procurement model. (Table 5, Model 3). Procurement bribes follow a different pattern. OECD-ABC firms are considerably more likely than non-signatories to bribe prior to Phase 3 (86% versus 24%). Nevertheless, the onset of Phase 3 reduced the activity among OECD-ABC signatories (to about 70%), while it increased over the same time period among non-signatories (to 36%).

[36] Because of the small sample size in these two analyses, we follow Glynn (2013) by truncating bribes at zero when firms have predicted bribes that are nonsensically less than zero. This tends to raise the average bribe size slight, but marginal effects remain unchanged.

Again, although bribery behavior can be driven by many factors, our results are consistent when looking at the differences between OECD-ABC signatories and non-signatories. There is little difference between these groups until Phase 3. After Phase 3, we observe vastly lower levels of corruption among firm from signatories compared to those from non-signatories.

Sensitivity Analyses

The diff-in-diff estimator identifies the impact of the treatment under the *parallel paths* assumption that the unobserved difference between the treatment and control groups is time-constant between survey rounds. In other words, we should not observe differential trending between the signatory and non-signatory groups in the same direction prior to Phase 3. Figure 5 shows graphically that the assumption appears to be met by tracking whether signatory and non-signatory countries demonstrate divergent change rates prior to Phase 3. We use five-year averages, as some years have too few entrants to draw reliable samples. Figure 5 is supportive of our analysis, showing that the two country types ebb and flow together before diverging after Phase 3. We more formally test this assumption by running diff-in-diff regressions around 2008, two years prior to Phase 3 (Table 6). Critically, the interaction coefficients are insignificant in 2008, indicating that the bribery trends do not differ between signatory and non-signatories between 2008 and 2010.

<Figure 5 and Table 6 about Here>

Non-Random Selection into OECD-ABC

A second threat to causal inference is the non-random entry into the Convention. As we have repeatedly noted, Convention signatories differ in multiple meaningful ways from non-signatories. If any of these features were associated with both the decision to sign and bribe propensity, we may be over-estimating the effectiveness of the Convention. To address this problem, we exploit a well-documented, historical aspect of the selection process. As Tarullo (2003, 669) writes, the United States severely twisted the arms of key allies to join, linking the Convention strongly to support for other international agreements and actions. The international pressure provides an exogenous source of selection that we can exploit to separate signatories from other features of OECD members.

<Table 7 about Here>

A common indicator of alignment with U.S. interests is the covariation of country votes in the United Nations General Assembly (UNGA). Although most of these votes have a limited influence on global political or economic relations, they do serve as a costly signal of country positions on an issue. Numerous scholars have used these votes as a means of measuring the extent to which a country aligns itself with the United States.[37] To this end, we use UNGA voting between (1987 and 1997) as an instrument in a three stage empirical model. Helpfully, Strezhnev and Voeten (2013) have created ideal point measures based on proximity to the U.S. position. We argue that proximity to the U.S. in UNGA votes should be significantly correlated with signing the Convention, but is theoretically uncorrelated with bribery by individual firms in the 2000s. The results of the three-stage model are presented in Table 7.[38] Standard diagnostics, such as the Cragg-Donald F statistic, demonstrate that the instrument is sufficiently strong and identified to use in the analysis. Further, after repeating the main estimations for registration, Group A licensing, and procurement, we find that the substantive effects of OECD-ABC membership and enforcement on bribery are actually enhanced. Thus, we can conclude that there is sufficient evidence that Phase 3 of the OECD-ABC has had a significant effect on reducing bribery among members.

Conclusion

In this paper we engage the large and growing literature on the determinants of bribery in business transactions using Vietnam as an ideal empirical case study of liberalization to test how the OECD Convention on Bribery of Foreign Public Officials in International Business Transactions, and its enforcement, shape bribery. Using a major corruption scandal in Vietnam during the rollout of our survey as a natural experiment, we show that mangers are extremely sensitive to answering questions about corruption. We then introduce unique survey data that directly measure corruption without forcing managers to incriminate themselves for illegal activities. Using this methodology we find that roughly 20% of foreign investors in Vietnam engaged in bribery.

[37] For example, See Voeten (2000)
[38] See Appendix A7 for graphics of the bivariate correlation.

We harness this data to answer a set of important substantive questions on how the OECD-ABC affected levels of bribery by firms from signatory countries located in Vietnam. Our main finding is that the success of the OECD-ABC is mixed. We find that merely signing onto the Convention had no impact on bribery. Only once the countries experienced serious monitoring in Phase 3 of the Convention do we see a divergence in bribery behavior by signatories and non-signatories. In this phase, we find substantial evidence that the Convention has helped curb bribery behavior by managers.

We find similar substantive findings whether we look at informal payments during business registration, bribery to gain access to "restricted" sectors, or bribery engaged in during procurement. For each type of bribery behavior, we find slightly different patterns over time. For example, we see a major increase in bribery during procurement in the latest years in our survey, while growth in bribery during business registration is less extreme. However, in all three forms of bribery we observe the same pattern. Firms from OECD-ABC signatories, and especially the countries with the strongest enforcement, engage in less corruption relative to firms from non-signatory countries, even after controlling for non-random selection into the OECD-ABC.

However, our results indicate that the OECD-ABC has not stopped, or in some cases even slowed, bribery in Vietnam. This Convention is therefore far from a single solution that can curb bribery. On the other hand, however, we do find that, absent the Convention, and specifically monitoring in Phase 3, bribery levels among firms from signatory countries would have been much higher.

Overall, our research helps open avenues for new questions and rigorous tests in management. In addition, our use of the UCT allows us to have the advantages of both obtaining direct information on illegal or unethical activities, while at the same time shielding respondents from any repercussions from answering honestly. This approach helps overcome problems with using traditional corruption questions, shedding more light on the effects of international conventions, like the OECD-ABC, on levels of firm bribery.

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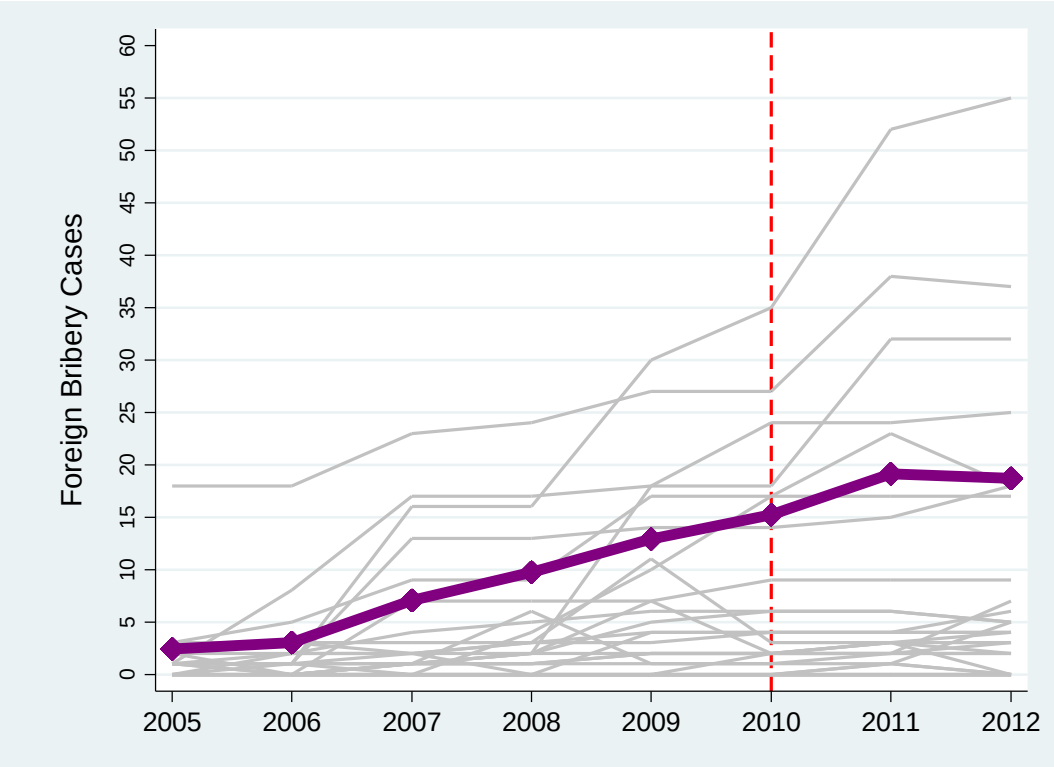

Figure 1: Foreign Bribery Cases Pursued in Signatory Countries before and after Phase 3
Thin gray lines show the trend lines for each of the 29 individual signatories. The thick dark line marked by diamonds provides the mean number of cases for all OECD Signatories.

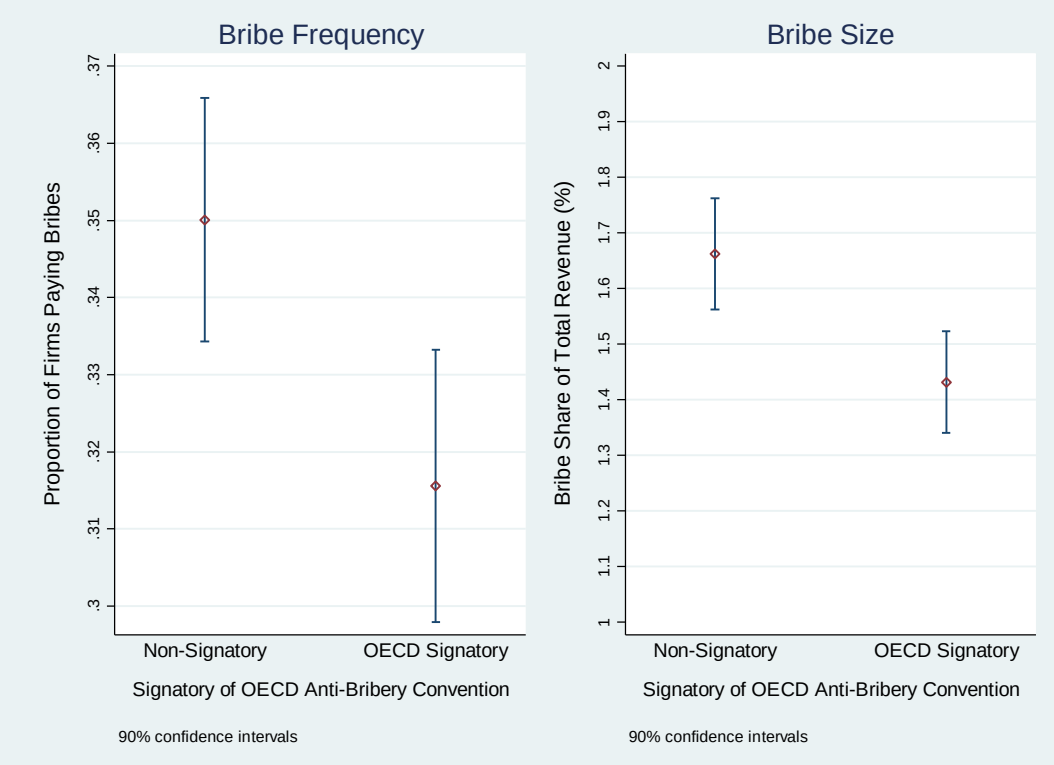

Figure 2: Differences between OECD Anti-Bribery Convention Signatories and Non-Signatories Using Standard Corruption Questions. Data obtained from four years of annual PCI-FDI survey (2010–2013) using questions e11 and e12, which replicate questions j7a and j7b from the World Bank's Enterprise Survey. These graphs show unadjusted differences in means, but the results are robust to multiple regression using firm-level, sector-level, and country-level controls.

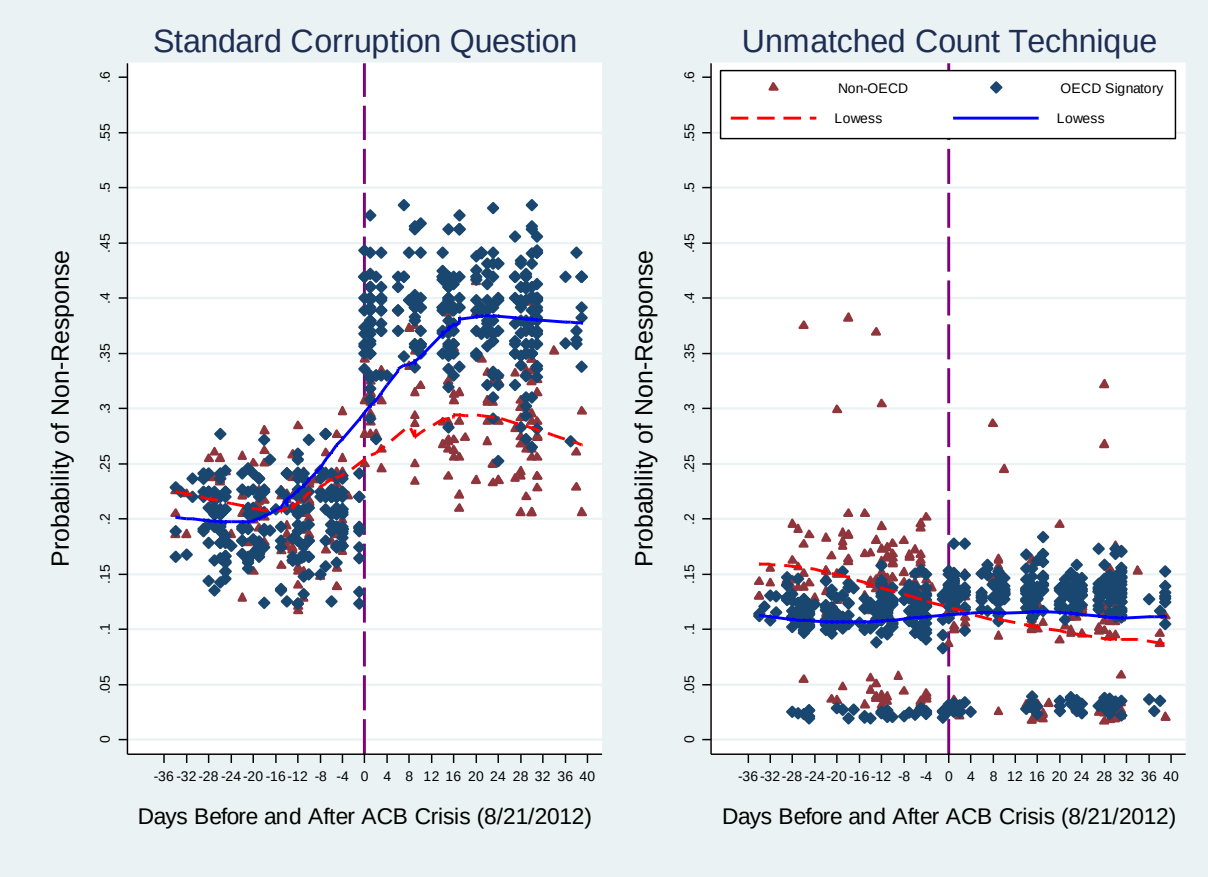

Figure 3: Stress Test – The Impact of the OECD Anti-Bribery Convention on Reticent Response before and after the Arrest of Nguyen Duc Kien, Chairman of ACB Commercial Bank. X-Axis reports predicted probability of item non-response based on the multiple regression in Table 2. The Y-Axis records the days before and after the ACB crisis that the respondent received the PCI-FDI survey. The first panel shows changes in reticent response to standard corruption questions. The second panel shows changes in reticent response to the Unmatched Count Technique (UCT).

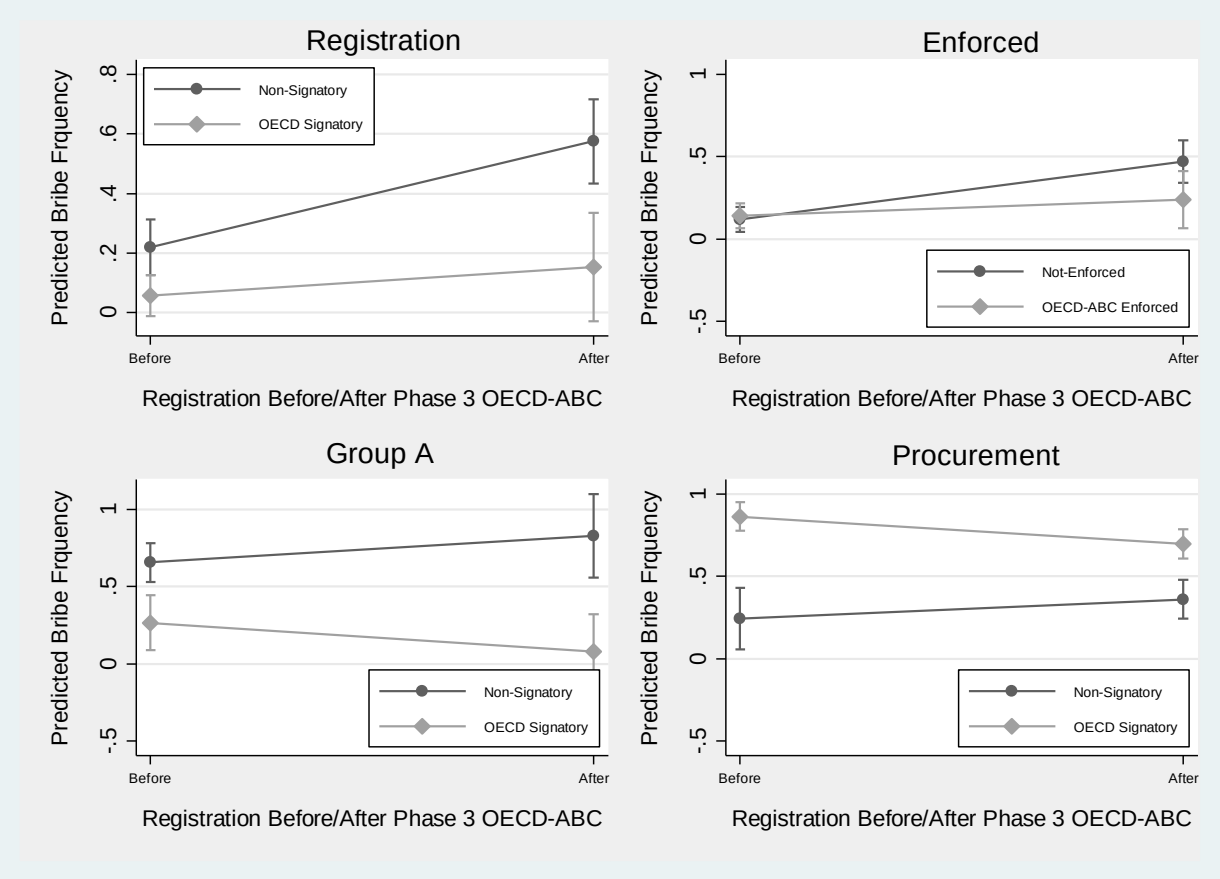

Figure 4: Marginal Effects of Phase 3 Onset on Bribery. Each panel portrays the predicted and marginal effects of fully specified regression models in Tables 3 and 4. Dark dots denote the predicted share of firms from non-signatory countries paying bribes. Light diamond dots depict bribe frequency for OECD-ABC signatories. Range bars are 95% confidence intervals. Slope lines between predicted values display the marginal effects of Phase 3 onset. The Registration results are drawn from Table 4 (Model 5), the Enforcement results from Table 4 (Model 6), Group A results are from Table 4 (Model 8), and Procurement commissions from Table 5 (Model 3).

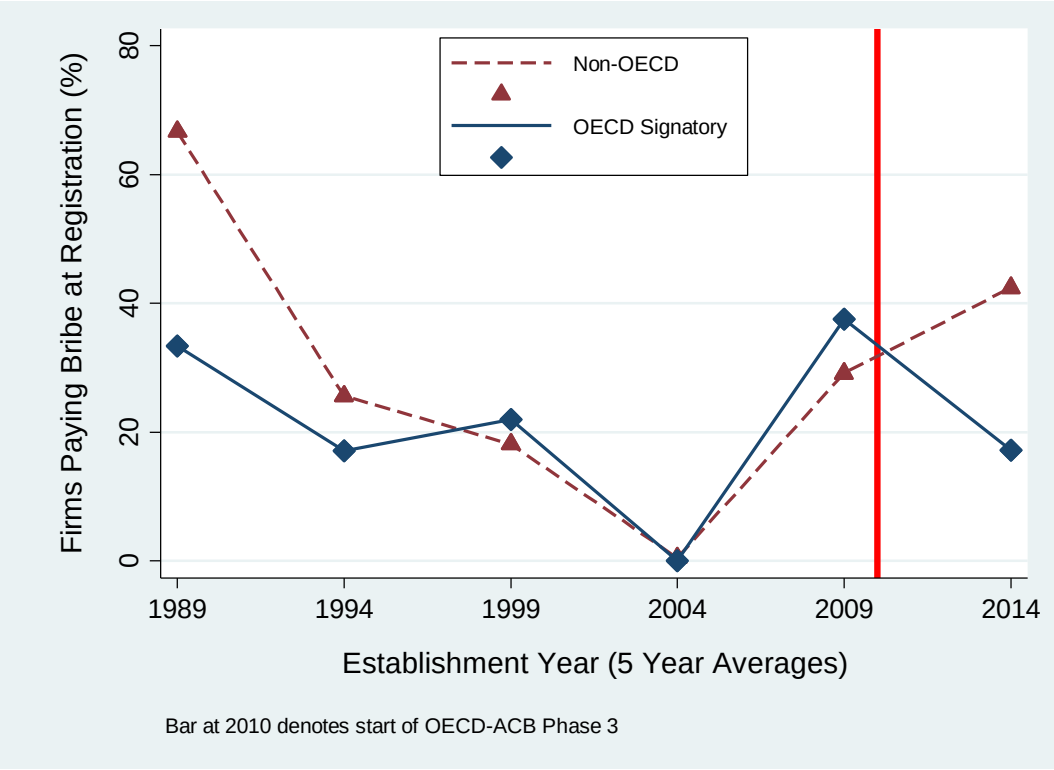

Figure 5: Test of Parallel Trends Assumption: Looks at average bribery over five-year periods among signatories and non-signatories of OECD countries. The red line at 2010 indicates the onset of Phase 3.

Table 1: Traditional Questions and the Association between the OECD-ABC and Bribery by Foreign Investors

Dependent Variable: Bribe Size/Revenue (%)	All Years					Only 2012	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Signed OECD Bribe Convention =1	-0.231**	-0.224***	-0.296***	-0.249*		-0.424***	
	(0.103)	(0.078)	(0.059)	(0.143)		(0.114)	
Domestic Enforcement of Convention (1 to 4)					-0.079*		-0.116**
					(0.040)		(0.044)
100% Foreign Owned =1			-0.378**	-0.238	-0.240	-0.554**	-0.553*
			(0.146)	(0.181)	(0.180)	(0.270)	(0.270)
Size of Firm at Establishment (1 to 8)			-0.213**	-0.202**	-0.201**	-0.077	-0.078
			(0.080)	(0.091)	(0.091)	(0.185)	(0.185)
Industrial Zone=1			-0.051**	-0.046*	-0.046*	-0.117**	-0.117**
			(0.023)	(0.025)	(0.025)	(0.051)	(0.051)
Corruption Perceptions Index (TI)				-0.103	-0.100*	-0.139**	-0.135**
				(0.062)	(0.057)	(0.063)	(0.059)
GDP Per Capita (ln)				0.146	0.141	0.471**	0.444**
				(0.176)	(0.161)	(0.217)	(0.214)
Constant	1.663***	1.688***	2.306***	1.340	1.374	-1.309	-1.101
	(0.089)	(0.104)	(0.159)	(1.339)	(1.231)	(1.691)	(1.698)
Survey Year FE	No	Yes	Yes	Yes	Yes	Yes	Yes
2-Digit Sector ISIC FE	No	Yes	Yes	Yes	Yes	Yes	Yes
Observations	4,361	4,337	3,202	2,552	2,552	564	564
Country Clusters	59	59	54	45	45	29	29
R-squared	0.002	0.033	0.056	0.064	0.064	0.212	0.211
Root Mean Squared Error	2.787	2.774	2.801	2.719	2.719	1.898	1.899

OLS with robust standard errors, clustered at country level, in parentheses. *** p<0.01, ** p<0.05, * p<0.1.

Table 2: Modeling Non-Response before and after the 2012 ACB Crisis in Vietnam

Dependent variable: Firms which refused to answer question=1.	Standard Corrupt Question				Unmatched Count Technique			
	Before/After	**Days Before/After**	**Before/After**	**Days Before/After**	**Before/After**	**Days Before/After**	**Before/After**	**Days Before/After**
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Signed OECD Bribe Convention =1	-0.053		-0.004		-0.037		-0.019	
	(0.048)		(0.033)		(0.025)		(0.020)	
Domestic Enforcement of Convention (3 & 4)		-0.061		-0.009		-0.031		-0.012
		(0.049)		(0.034)		(0.026)		(0.020)
After ACB Arrest	0.080	0.078			-0.030	-0.030		
	(0.055)	(0.054)			(0.030)	(0.030)		
Number of Days before/after ACB Arrest			0.000	0.000			-0.001*	-0.001*
			(0.001)	(0.001)			(0.001)	(0.001)
OECD*AfterACB	0.117*	0.122**			0.040	0.041		
	(0.060)	(0.060)			(0.041)	(0.041)		
OECD*Distance			0.005***	0.005***			0.002	0.002
			(0.001)	(0.001)			(0.001)	(0.001)
100% Foreign Owned =1	0.019*	0.019*	0.020**	0.020**	0.007	0.007	0.007	0.007
	(0.010)	(0.011)	(0.010)	(0.010)	(0.007)	(0.007)	(0.007)	(0.007)
Size of Firm at Establishment (1 to 8)	0.059	0.060	0.062	0.063	0.097***	0.097***	0.095***	0.095***
	(0.046)	(0.046)	(0.048)	(0.048)	(0.021)	(0.021)	(0.020)	(0.020)
Industrial Zone=1	0.026	0.026	0.020	0.019	0.002	0.001	0.002	0.001
	(0.028)	(0.028)	(0.028)	(0.028)	(0.024)	(0.024)	(0.024)	(0.024)
Corruption Perceptions Index (TI)	0.010	0.012	0.015	0.017	-0.002	-0.005	0.000	-0.003
	(0.042)	(0.043)	(0.041)	(0.042)	(0.021)	(0.021)	(0.019)	(0.019)
GDP Per Capita (ln)	0.002	0.002	0.002	0.002	0.001	0.002	0.001	0.001
	(0.014)	(0.014)	(0.015)	(0.014)	(0.005)	(0.005)	(0.005)	(0.005)
Observations	792	792	792	792	792	792	792	792
Country Clusters	32	32	32	32	32	32	32	32
Pbar	0.285	0.285	0.285	0.285	0.112	0.112	0.112	0.112
(Pseudo) R-squared	0.0378	0.0380	0.0321	0.0322	0.0284	0.0282	0.0306	0.0303
Log-Likelihood	-455.7	-455.6	-458.4	-458.3	-270.4	-270.5	-269.8	-269.9
Chi-Squared	166.0	170.0	97.92	92.40	43.93	40.07	37.54	33.18

Probit model with marginal probabilities presented. Robust standard errors, clustered at country level, in parentheses. *** p<0.01, ** p<0.05, * p<0.1. Panel 1 studies non-response in standard questions. Panel 2 studies non-response to the Unmatched Count Technique question.

Table 3: Calculation of Firms Paying Bribes using the Unmatched Count Technique

1. All Firms, All Years					
Treatment	**Mean**	**SE**	**Low**	**High**	**Bribe**
No	1.403	0.02	1.37	1.44	*19.2%*
Yes	1.595	0.02	1.56	1.63	
2. All Years by OECD Anti-Bribery Convention Signatory Status					
OECD	**Treatment**	**Mean**	**SE**	**Low**	**High**	**Bribe**
No	No	1.371	0.02	1.32	1.42	*18.7%*
No	Yes	1.557	0.02	1.51	1.60	
Yes	No	1.443	0.03	1.39	1.50	*20.6%*
Yes	Yes	1.648	0.03	1.59	1.71	
3. Before Phase 3 by OECD Anti-Bribery Convention Signatory Status					
OECD	**Treatment**	**Mean**	**SE**	**Low**	**High**	**Bribe**
No	No	1.376	0.03	1.33	1.43	*16.7%*
No	Yes	1.543	0.03	1.49	1.59	
Yes	No	1.425	0.03	1.37	1.48	*20.6%*
Yes	Yes	1.631	0.03	1.57	1.69	
4. After Phase 3 OECD Anti-Bribery Convention Signatory Status					
OECD	**Treatment**	**Mean**	**SE**	**Low**	**High**	**Bribe**
No	No	1.317	0.09	1.14	1.49	*39.6%*
No	Yes	1.713	0.09	1.53	1.89	
Yes	No	1.543	0.07	1.41	1.68	*22.7%*
Yes	Yes	1.770	0.09	1.59	1.95	

Table 4: Correlates of Corruption during Business Entry (LIST Method)

Dependent variable: difference between the activities reported by treatment group and predicted number of nonsensitive activities of control group.	All Sectors						Group A Sectors (Restricted)			
	Diff-in-Means	No Controls	Sectors	Firm Controls	Country Controls	Country Controls	Sectors	Country Controls	Country Controls	Country Controls
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Firm Entered after Home Country Completed Phase 3		0.229***	0.277***	0.276***	0.356***	0.352***	0.054	0.149	0.061	0.148
		(0.072)	(0.049)	(0.072)	(0.085)	(0.089)	(0.243)	(0.288)	(0.247)	(0.277)
Signed OECD Bribe Convention =1		0.039	0.069	0.053	-0.162**		-0.033	-0.705***		
		(0.048)	(0.046)	(0.045)	(0.080)		(0.106)	(0.115)		
Domestic Enforcement of Convention (1 to 4)						-0.009			-0.013	-0.160***
						(0.037)			(0.033)	(0.059)
OECD*Phase3		-0.208**	-0.228***	-0.201***	-0.260**		-0.402	-0.571		
		(0.084)	(0.077)	(0.075)	(0.114)		(0.249)	(0.383)		
OECD Enforcement*Phase3						-0.081**			-0.136*	-0.192*
						(0.036)			(0.077)	(0.106)
100% Foreign Owned =1				-0.065	-0.111*	-0.111*		0.098		0.110
				(0.049)	(0.056)	(0.057)		(0.110)		(0.108)
Size of Firm at Establishment (1 to 8)				-0.031***	-0.017	-0.016		-0.041		-0.037
				(0.011)	(0.014)	(0.014)		(0.033)		(0.033)
Industrial Zone=1				-0.033	0.027	0.024		-0.003		-0.007
				(0.056)	(0.067)	(0.067)		(0.206)		(0.209)
Corruption Perceptions Index (TI)					-0.130***	-0.128***		-0.076		-0.062
					(0.037)	(0.038)		(0.101)		(0.101)
GDP Per Capita (ln)					0.321***	0.309***		0.135		0.095
					(0.076)	(0.074)		(0.215)		(0.211)
Democracy=1					0.055	-0.056		0.460***		0.263***
					(0.090)	(0.110)		(0.080)		(0.086)
Distance in KM (ln)					0.032	0.026		0.068		0.078
					(0.043)	(0.044)		(0.081)		(0.087)
Constant	0.192***	0.167***	0.167**	0.368***	-2.241***	-2.099***	0.194**	-1.051	0.201**	-0.822
	(0.044)	(0.055)	(0.076)	(0.086)	(0.615)	(0.565)	(0.093)	(1.812)	(0.093)	(1.746)
Survey Year FE	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry FE	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	2636	2636	2626	2289	1806	1806	443	326	443	326
Country Clusters	56	56	56	53	52	52	38	36	38	36
R-Squared	0	0.00260	0.0402	0.0474	0.0633	0.0623	0.104	0.138	0.105	0.132
Root Mean Squared Error	0.982	0.980	0.951	0.945	0.960	0.960	0.939	0.967	0.940	0.967
Log-Likelihood	-3691	-3685	-3549	-3075	-2443	-2442	-579.4	-427.5	-579.5	-427.4

Note: These results are derived from a two-stage model. In the first stage, the number of nonsensitive activities is regressed on the covariates for the control group using a negative binomial specification. The predicted number of nonsensitive activities is then subtracted from the total number of registration activities for the treatment group. The difference becomes the dependent variable in the second stage, which is analyzed using a Non-Linear Least Squares (NL) specification in models without fixed effects and OLS in models with fixed effects. Note that the number of observations (N) is the number of respondents in the treatment group. As Model 1 shows, the process correctly delivers the difference-in-means estimator for the whole sample and by year, indicating that the two-stage procedures yields unbiased estimates. Panel 1 studies all sectors, Panel 2 restricts the analysis to Group A sectors that require special registration procedures. Because the dependent variable is an estimate, standard errors are calculated through bootstrapping procedure with 1000 repetitions . Errors are clustered at the home country level. (*** p<0.01, ** p<0.05, * p<0.1)

Table 5: Correlates of Corruption during Procurement (LIST Method)

Dependent variable: difference between the activities reported by treatment group and predicted number of nonsensitive activities of control group.	**No Controls**	**Sectors**	**Firm Controls**	**Country Controls**	**Country Controls**
	(1)	(2)	(3)	(4)	(5)
Firm Entered after Home Country Completed Phase 3	0.198*	-0.058	0.125	0.170*	0.085
	(0.113)	(0.100)	(0.089)	(0.100)	(0.090)
Signed OECD Bribe Convention =1	0.069	0.049	0.930***		
	(0.107)	(0.121)	(0.237)		
Domestic Enforcement of Convention (1 to 4)				-0.004	-0.072
				(0.035)	(0.058)
OECD*Phase3	-0.310**	-0.161	-0.375***		
	(0.147)	(0.110)	(0.109)		
OECD Enforcement*Phase3				-0.082**	-0.092***
				(0.036)	(0.030)
100% Foreign Owned =1		0.281***	0.341***		0.320***
		(0.083)	(0.063)		(0.063)
Size of Firm at Establishment (1 to 8)		-0.148***	-0.137***		-0.137***
		(0.020)	(0.026)		(0.026)
Industrial Zone=1		0.116	0.232**		0.196*
		(0.086)	(0.106)		(0.105)
Corruption Perceptions Index (TI)			0.012		-0.006
			(0.021)		(0.020)
GDP Per Capita (ln)			0.027		0.116**
			(0.045)		(0.047)
Democracy=1			-0.875***		-0.067
			(0.225)		(0.179)
Distance in KM (ln)			-0.097		0.050
			(0.099)		(0.102)
Constant	1.008***	1.265***	1.591*	1.052***	-0.181
	(0.113)	(0.081)	(0.800)	(0.112)	(0.770)
Survey Year FE	Yes	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes	Yes
Observations	764	693	603	764	603
Country Clusters	36	33	33	36	33
R-Squared	0.451	0.490	0.489	0.452	0.483
Root Mean Squared Error	0.865	0.856	0.855	0.865	0.856
Log-Likelihood	-935.3	-837.4	-721.2	-935.4	-721.5

Note: These results are derived from a two-stage model. In the first stage, the number of nonsensitive activities is regressed on the covariates for the control group using a negative binomial specification. The predicted number of nonsensitive activities is then subtracted from the total number of registration activities for the treatment group. The difference becomes the dependent variable in the second stage, which is analyzed using a Non-Linear Least Squares (NL) specification in models without fixed effects and OLS in models with fixed effects. Note that the number of observations (N) is the number of respondents in the treatment group. As Model 1 shows, the process correctly delivers the difference-in-means estimator for the whole sample and by year, indicating that the two-stage procedure yields unbiased estimates. Panel 1 studies all sectors, Panel 2 restricts the analysis to Group A sectors that require special registration procedures. Because the dependent variable is an estimate, standard errors are calculated through bootstrapping procedure with 1000 repetitions . Errors are clustered at the home country level. (*** p<0.01, ** p<0.05, * p<0.1)

Table 6: Test of Parallel Trends Assumption using Pre-Treatment Period

Dependent variable: difference between the activities reported by treatment group and predicted number of nonsensitive activities of control group.	**Pre-Phase 3 Trend (After 2008=1)**					
	Registration		**Group A Sectors**		**Procurement**	
	(1)	(2)	(3)	(4)	(5)	(6)
Trend	0.098	0.086	0.152	0.126	-0.631***	-0.661***
	(0.070)	(0.066)	(0.318)	(0.327)	(0.183)	(0.179)
Signed OECD Bribe Convention =1	-0.238***		-0.802***		0.487	
	(0.073)		(0.144)		(0.489)	
Domestic Enforcement of Convention (1 to 4)		-0.038		-0.183**		-0.118
		(0.036)		(0.067)		(0.154)
Trend*OECD	0.099		-0.099		0.277	
	(0.095)		(0.263)		(0.228)	
Trend*OECD Enforce		0.039		-0.016		0.110
		(0.030)		(0.088)		(0.072)
100% Foreign Owned =1	-0.118**	-0.118**	0.087	0.094	0.388***	0.375***
	(0.056)	(0.057)	(0.112)	(0.112)	(0.116)	(0.118)
Size of Firm at Establishment (1 to 8)	-0.013	-0.012	-0.034	-0.027	-0.112	-0.111
	(0.014)	(0.015)	(0.033)	(0.032)	(0.097)	(0.094)
Industrial Zone=1	0.024	0.021	-0.025	-0.030	0.079	0.050
	(0.066)	(0.066)	(0.208)	(0.214)	(0.230)	(0.228)
Corruption Perceptions Index (TI)	-0.128***	-0.126***	-0.088	-0.074	-0.074	-0.088
	(0.036)	(0.037)	(0.098)	(0.097)	(0.099)	(0.096)
GDP Per Capita (ln)	0.322***	0.310***	0.167	0.125	0.337	0.395
	(0.074)	(0.073)	(0.207)	(0.203)	(0.302)	(0.281)
Democracy=1	0.056	-0.051	0.462***	0.232**	-0.862***	-0.264
	(0.088)	(0.109)	(0.099)	(0.106)	(0.184)	(0.245)
Distance in KM (ln)	0.040	0.037	0.088	0.095	0.027	0.135
	(0.043)	(0.044)	(0.075)	(0.080)	(0.180)	(0.240)
Constant	-2.296***	-2.177***	-1.433	-1.174	-2.466	-3.677
	(0.605)	(0.556)	(1.732)	(1.669)	(3.398)	(3.532)
Survey Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes
Observations	1806	1806	326	326	340	340
Country Clusters	52	52	36	36	23	23
R-squared	0.0623	0.0613	0.141	0.132	0.208	0.202
rmse	0.960	0.960	0.968	0.969	1.197	1.197
ll	-2442	-2442	-427.9	-428.0	-506.8	-506.9

Note: These results are derived from a two-stage model. In the first stage, the number of nonsensitive activities is regressed on the covariates for the control group using a negative binomial specification. The predicted number of nonsensitive activities is then subtracted from the total number of registration activities for the treatment group. The difference becomes the dependent variable in the second stage, which is analyzed using a Non-Linear Least Squares (NL) specification in models without fixed effects and OLS in models with fixed effects. Note that the number of observations (N) is the number of respondents in the treatment group. As Model 1 shows, the process correctly delivers the difference-in-means estimator for the whole sample and by year, indicating that the two-stage procedure yields unbiased estimates. Panel 1 studies all sectors, Panel 2 restricts the analysis to Group A sectors that require special registration procedures. Because the dependent variable is an estimate, standard errors are calculated through bootstrapping procedure with 1000 repetitions . Errors are clustered at the home country level. (*** p<0.01, ** p<0.05, * p<0.1)

Table 7: Addressing Non-Random Selection into the OECD-ABC (Instrumental Variables Model)

Dependent variable: difference between the activities reported by treatment group and predicted number of nonsensitive activities of control group.	**Instrumented by UNGA Ideal Point**					
	Registration		**Group A Sectors**		**Procurement**	
	(1)	(2)	(3)	(4)	(5)	(6)
Firm Entered after Home Country Completed Phase 3	0.424***	0.397***	0.462*	0.520**	-0.464	-1.034***
	(0.110)	(0.104)	(0.269)	(0.232)	(0.340)	(0.291)
Signed OECD Bribe Convention =1	0.539		7.295***		-10.359**	
	(2.207)		(1.334)		(4.594)	
Domestic Enforcement of Convention (1 to 4)		-0.109		-0.170		2.954***
		(0.149)		(0.232)		(0.384)
Trend*OECD	-0.374***		-1.319***		0.353	
	(0.137)		(0.310)		(0.469)	
Trend*OECD Enforce		-0.108***		-0.392***		0.212*
		(0.042)		(0.088)		(0.120)
100% Foreign Owned =1	-0.104*	-0.118**	0.415***	0.135	0.153	0.435***
	(0.057)	(0.055)	(0.107)	(0.105)	(0.125)	(0.121)
Size of Firm at Establishment (1 to 8)	-0.012	-0.016	-0.001	-0.034	-0.086	-0.067
	(0.017)	(0.014)	(0.037)	(0.029)	(0.065)	(0.089)
Industrial Zone=1	0.007	0.026	-0.107	-0.049	-0.094	0.252
	(0.065)	(0.066)	(0.228)	(0.221)	(0.249)	(0.194)
Corruption Perceptions Index (TI)	-0.113***	-0.126***	0.029	-0.042	-0.161**	0.014
	(0.035)	(0.036)	(0.088)	(0.087)	(0.080)	(0.092)
GDP Per Capita (ln)	0.222	0.324***	-0.661***	0.048	1.269**	-0.322**
	(0.145)	(0.072)	(0.197)	(0.188)	(0.566)	(0.155)
Democracy=1	-0.446	0.163	-5.041***	0.312	6.789**	-6.397***
	(1.667)	(0.331)	(0.788)	(0.380)	(2.960)	(0.953)
Distance in KM (ln)	-0.034	0.074	-0.952***	0.102	1.415*	-1.572***
	(0.202)	(0.086)	(0.217)	(0.175)	(0.791)	(0.232)
Constant	-1.337	-2.942***	12.274***	-0.361	-20.544*	14.974***
	(2.695)	(0.822)	(2.613)	(2.155)	(10.861)	(1.308)
Survey Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes
Observations	1,779	1,779	320	320	330	330
Country Clusters	52	52	36	36	23	23
R-squared	0.110	0.096	0.710	0.220	0.004	0.639
rmse	0.943	0.935	0.896	0.895	1.365	1.114
ll	-2420	-2404	-418.9	-418.7	-570.8	-503.8
Cragg-Donald Wald F statistic	4.861	101.5	6.874	23.72	1.451	8.653
Kleibergen-Paap rk Wald F statistic	0.414	10.21	0.977	3.692	2.099	4.506

Note: These results are derived from a three-stage model. In the first stage, we fit a linear probability model, regressing signing the OECD-ACB on ideal point estimates of UNGA Voting between 1997 and 2007. In the second stage, the number of nonsensitive activities is regressed on the covariates for the control group using a negative binomial specification. The predicted number of nonsensitive activities is then subtracted from the total number of registration activities for the treatment group. The difference becomes the dependent variable in the third stage, which is analyzed using an OLS model. Note that the number of observations (N) is the number of respondents in the treatment group. Because the dependent variable is an estimate, standard errors are calculated through bootstrapping procedure with 1000 repetitions . Errors are clustered at the host country level. (*** p<0.01, ** p<0.05, * p<0.1)