CORRUPT PROTECTION FOR SALE TO FIRMS: EVIDENCE FROM INDONESIA[*]

AHMED MUSHFIQ MOBARAK
(University of Colorado at Boulder)

DENNI PUSPA PURBASARI
(University of Colorado at Boulder and Gadjah Mada University)

April 15, 2006

Abstract

Empirical tests of the "Protection For Sale" hypothesis typically involve regressing industry-average tariff or non-tariff trade barriers on lobbying by industries. In developing countries, politicians in power are more interested in protecting the business interests of particular individuals "connected" to them, not industries as a whole. Tariffs are not firm-specific (and are subject to WTO penalties), which is why politicians assign import licenses on the basis of corrupt or nepotistic personal relationships with individual firm owners. This paper identifies "politically connected" firms from the entire population of over 20,000 manufacturing firms in Indonesia, and studies the impact of a connection to President Suharto on the probability that those firms are granted import licenses for raw-materials and for commodities for sale in local markets. By conservative estimates, being connected triples the likelihood of receiving a license relative to the firm's competitors, and having a member of the Suharto family on the firm's board of management quadruples this likelihood. Moreover, licenses often create monopolies for connected firms, as their competitors are less likely to receive the same import license. There are indications of welfare losses from this system of corrupt protection. In particular, licensing increases prices for downstream producers and consumers, increases industry concentration, and decreases the correlation between firm productivity and market share. Finally, we show that it would be difficult to uncover details of the system of corrupt trade protection prevalent in Indonesia by conducting industry-level analysis of the determinants of tariff rates or non-tariff barriers.

JEL Codes: F1, F13, O12

Please Direct Correspondence to:
A. Mushfiq Mobarak, Assistant Professor of Economics, 256 UCB, Boulder, CO 80309
Email: mobarak@spot.colorado.edu; Phone: 303-492-8872

The paper is available at: www.colorado.edu/Economics/courses/mobarak/Research.htm

I. Introduction

The discrepancy between the "free trade" policies prescribed by economic theory and the protectionist policies actually practiced around the world is generally attributed to the role of politics in trade policy formulation. For example, Findlay and Wellisz (1982), Hillman (1989), Magee, Brock and Young (1989), and Grossman and Helpman (1994) develop models in which politicians "sell" protection in exchange for either lobbying efforts, campaign contributions by industries, or for electoral benefits.[1] Empirical tests of these ideas (Goldberg and Maggi 1999, Gawande and Bandyopadhyay 2000, Eicher and Osang 2002, Mitra, Thomakos and Ulubaşoğlu 2002, Ederington and Minier 2003, McCalman 2004, Bombardini 2004, Esfahani 2005) use data from the United States, Australia and Turkey, and typically regress industry-level aggregates of tariff or non-tariff trade barriers on a measure of campaign contributions or an indicator for industries that are "organized lobbies."

While this approach yields valuable insights for developed countries where election campaign contributions and industry lobbies are important, it masks important details of the contributions-protection exchange for developing countries where such business-politics reciprocal relationships are more prevalent and arguably more costly. Protection typically involves more of a corrupt contract in most developing countries where politicians in power may provide trade licenses (e.g. a license to import raw materials) to certain *firms*, either in exchange for bribes or because that politician is a kin relation to the businessman running the firm. The purpose of the trade barrier is not to protect the industry as a whole, but to protect a particular businessman related to the

[1] See Rodrik (1995) for a survey of political economy models of trade protection. Recent empirical papers on the link between politics and trade protection mostly attempt to test theoretical propositions contained in Grossman and Helpman (1994).

1

politician from both foreign competitors and other domestic producers in that industry. Industry lobbies and tariffs are therefore not the best setting in which to study trade protection in these countries.

In contrast to the existing empirical literature in this area, this paper undertakes an intensive data-gathering exercise to create firm-specific indicators of political connections for over 20,000 manufacturing firms, and then studies their impact on the likelihood that those firms and their competitors receive licenses to import raw materials used in their production processes or to import commodities for sale in local markets. These licensing requirements have been the major *firm-specific* trade protection measure employed by the Indonesian government.

We create a variety of indicators for politically connected firms. Our first measure expands on an insight in Fisman (2001) by examining the response of the share returns of firms traded on the Jakarta stock exchange to a string of rumors about the adverse state of President Suharto's health.[2] We identify the major shareholders and members of the Board of Management of each of the firms whose asset returns suffered abnormal negative shocks in response to the rumors. We then identify all conglomerates run by these businessmen, and all other firms which belong to those conglomerates.

The major problem with this approach is that firms ideologically aligned with Suharto or those that hold licenses (but are not necessarily 'connected' in a corrupt or nepotistic sense) may lose value when Suharto becomes ill. Although newspaper and

---

[2] Fisman (2001) uses these same events coupled with consulting firm data on the strength of ties between roughly 80 firms and Suharto to estimate the value of the firms' political connections. We carry out this event study for all 285 firms traded on the Jakarta Stock Exchange as a starting point, and then combine it with information on the identities of major players in these firms and the conglomerations they belong to, in order to identify several hundred *connected* firms from the entire population of 22,000+ manufacturing firms in Indonesia. Leuz and Oberholzer-Gee (2003) uses a method similar to the first step of our process (the stock return regressions) to create a political connections indicator for 130 Indonesian firms.

bibliographic searches verify that most 'connected' individuals we identify had developed special relationships with Suharto that pre-date the introduction of the licensing scheme, we nevertheless create alternative measures that restrict the definition of 'politically connected' to only firms directly owned or managed by a Suharto family member, in order to avoid econometric problems associated with the procedure described above. We separately examine outcomes for firms with a Suharto family member in their boards, firms owned by the family, and firms owned by only people born into the Suharto family (ignoring those who join the family through marriage).

To measure firm-specific trade protection, we focus on import licenses for raw materials and for imported commodities sold in local markets. We identify all firms which possess import licenses and the 5-digit industries in which they operate, and as their control group, other firms which are not licensed, but producing in those same industries. The Suharto era licenses were an effective method of protection, since they created monopolies or at least competitive advantages for recipients within each industry. For example, of the 20 firms in Indonesia producing powdered, condensed and preserved milk, only 8 are classified as 'approved importers' by the government. A member firm of Suharto's son's conglomerate *Bimantara Citra* has been granted import licenses for 12 commodities necessary for milk production, whereas some of its competitors either cannot directly import any raw materials, or have been granted licenses for 3 or 4 commodities only. In such cases, competitors have to rely either on Bimantara, or on higher priced or poorer quality domestic substitutes for required raw materials.

Import licenses are a common trade protection measure in many developing countries because (a) they differentially protect certain firms within an industry, (b)

recipient firms are protected from both domestic and foreign competition, and (c) tariff rates are more easily verifiable, and subject to conditionalities imposed by international trade agreements. Politicians are often forced to rely on less visible forms of protection since the WTO can impose penalties based on observed tariff protection.[3] A licensing requirement may simply mean that the firm has to apply for and receive a signature from the government. Such licensing protection is easier to obfuscate, because on paper it is a simple requirement (usually a two-page form in Indonesia), but the government assigns licenses at its own discretion. From the perspective of a corrupt politician, licensing schemes have the added benefit that when the signature is obtained, a bribe is transferred that enters the politician's pocket directly.

We identify the licensed and the connected using the name of the firm and using company records to identify individuals running those firms. However, the Indonesian *Survey of Manufacturing Firms* (major source of data for other firm characteristics) does not disclose firm names. Merging these data therefore required intensive "detective" work to de-code the connected firms in the *Survey* on the basis of their industry, location and size.[4]

Controlling for industry and location fixed effects, and a variety of firm characteristics such as size, profits, productivity, ownership and export orientation, we find statistically strong evidence that politically connected firms are more likely to receive an import license compared to competitors, *and* that those competitors become

---

[3] Even in corrupt autocracies, domestic political concerns can induce governments to seek secrecy. On October 9, 1986, the Indonesian government shut down the country's second-largest newspaper a day after the paper printed a report about 44 import monopolies, even though the newspaper did not specifically identify the particular companies holding monopoly status (Jones and Pura, 1986).

[4] For the connected firms we identified, we only had the name of the firm, the province the firm was located in, the 5-digit industry code in which it operated, and the number of workers employed. We performed the very labor intensive task of searching for firm codes in the *Survey* which uniquely matched the location, size and industry of each of the 408 connected firms.

less likely to receive that same license. In addition, we aggregate data up to the industry level and replicate analyses conducted in the existing empirical literature on the "Protection for Sale" model. Industry level tariffs or non-tariff barriers do not appear to bear any systematic relationship to the political or organizational characteristics of Indonesian industries. An industry-level study would thus miss important details of this system of firm-specific political protection. Although industry-wide tariff and non-tariff barriers exist, they are probably not the most important protection measure handed out as political favors in Indonesia or in other developing countries.

Our main contribution is to point out that the instruments of political trade protection used in Indonesia and in many other developing countries are firm-specific, and that a focus on industry-wide tariffs or non-tariff barriers would be misplaced. We create firm-specific measures of protection and political connections for the universe of all manufacturing firms in a large developing country, and in order to sensibly correlate the two, we are able to de-code firm names in the *Survey of Manufacturing Firms.* Once this database is constructed, the conclusion reached – that Suharto protects his family and cronies – is hardly surprising, although both the magnitude of effects and the greater relevance of firms rather than industries in analyzing political protection may have been difficult to anticipate. The result also has practical significance since assigning licenses to individual businesses using a non-competitive mechanism may have larger welfare costs than protecting all firms in an industry uniformly through tariffs. Indeed, in 1997 the IMF required Indonesia to replace marketing monopolies and licensing in the imports of wheat flour and garlic with import tariffs of 10-20 percent. This is an implicit recognition that licensing is likely to be more 'costly' than tariffs to society.

Many descriptive accounts of the Indonesian licensing system allude to the higher prices paid by consumers for final products and by downstream producers for raw materials (e.g. see Jones and Pura, 1986 and Kwok, 1997) as a direct result of the licensing. As other indications of welfare costs, we show that the correlation between firm market share and productivity decreases in Indonesian industries governed by licensing relative to other industries following the introduction of licensing, while market concentration increases. This licensing system thus likely imposed efficiency costs on the Indonesian economy, both in terms of productivity loss (due to an uncompetitive mechanism for license allocation) and more concentrated markets.

The next section describes the ubiquity of licensing in the developing world and motivates Indonesia as a setting to study this form of business-politics exchange. Section III outlines the dataset we construct, and details our methodology for creating indicators for political connections, and for licensing and tariff protection. Section IV presents the regression results. Section V presents some evidence on the welfare costs of corrupt protection and Section VI concludes.

II. Firm-Level Analysis of Licensing and Business-Politics in Indonesia

The firm-level approach to analyzing political protection outlined in this paper has some methodological advantages. Aggregate industry-wide protection can be measured with error if there is significant dispersion in tariff rates within an industry. For example, in Indonesia in 1997, the average nominal tariff for the 3-digit industry "Transport Equipment" was 25%. However, at a more disaggregated (5-digit) level, manufacture of automobiles, two-wheelers and bicycles were protected by tariff rates

6

greater than 50%, while ship-building carried a tariff of only 5%. The truth is that different sets of firms are involved in the production of bicycles versus ships, and the government is differentially protecting the former set. Also, in industry-level regressions of trade protection on campaign contributions, some unobserved characteristic of the industries correlated with the ability to lobby (such as the industries' level of organization, profits or concentration) may impact trade barriers, and confound empirical inference. We can include industry fixed effects in order to account for such impacts.

The types of import licensing we analyze are common mechanisms of protection all over the developing world according to annual *Trade Policy Reviews* published by *General Agreement on Tariffs and Trade* (GATT) and the *World Trade Organization* (WTO). The justifications provided for licensing varies across countries and years, and range from public health, security, balance of payments and religious concerns to the protection of domestic industries. Trade Policy Reviews for India, Malaysia, Thailand, Indonesia and Philippines between 1990 and 1993 explicitly cite the protection of domestic industries as a motivating factor behind licensing, although in recent years these countries have eliminated many licensing requirements that are based on this objective. Various GATT reports suggest that these licenses impose costs on importers both in terms of direct fees and application processing delays, and governments often restrict the quantities allowed per approved importer. Many developing countries also exercise related forms of protection (such as importer registration, quotas and state trading) that are subject to the types of corrupt political influences discussed in this paper. For example, 29 percent of total imports in Bangladesh in 1991 can be attributed to state trading and government procurement. Wheat in Indonesia is another well-known

example of camouflaged licensing protection. The state-trading company BULOG is the sole licensed importer of wheat, but a Suharto crony firm *Bogasari* is its major beneficiary. Bogasari has special rights to mill BULOG's wheat into flour and received the flour at well below world market price ($82.48 per ton, whereas the purchase price was $150). This gave Bogasari's owner monopolistic control over all of Indonesia's flour, allowed him to charge a milling margin equivalent to 22% of the world price of wheat, and companies he owned subsequently gained significant market share in the lucrative instant noodle industry (Magiera 1993, Jakarta Post 1997, Aditjondro 1998b).

A few features of the nepotistic business-politics structure in Indonesia make it an ideal setting in which to empirically examine the politics of licensing protection. First, policy-making in Indonesia is highly centralized and directed by the President through his Cabinet. Trade policy is formulated through the Ministry of Industry and Trade and the Ministry of Finance. The Ministers are directly appointed by the President, and need not even be elected officials. The central role played by the President in policy formulation creates a direct mechanism through which a connection to the President can affect the protection a firm receives. In other countries with more decentralized political authority, such as empirical exercise would constitute a greater challenge.

Second, it is widely recognized that Indonesia under Suharto had an extremely corrupt business environment. Transparency International (TI) has consistently ranked Indonesia as one of the most corrupt countries in the world, in the same group as Kenya, Nigeria and Bangladesh (TI 2004). TI estimates Suharto's family fortune at around $30 billion, built over three decades from the President's control over vast sectors of the Indonesian economy (TI 1998). Henderson and Kuncoro (2004) report that Indonesian

firms spend on average over 10% of costs on bribes and over 10% of management time "smoothing business operations" to obtain licenses and permits. Olken (2005, 2006) also reports powerful evidence of corruption in Indonesia in two other settings.

Our measures of political connections are based on either direct observations of firms run by Suharto family members, or derived from information available to market participants aggregated in the Jakarta Stock Exchange (JSX), rather than subjective judgments, surveys or consulting firm reports. The Suharto influence on Indonesian business groups has an inter-connected expansive pyramidal structure (see Appendix A1) where each group connected to the family is in turn connected to yet more business groups through joint ownership or management. This makes it difficult to derive an objective classification rule to separate connected firms from un-connected ones, and necessitates our data-intensive procedures for identifying the connected.

Two related studies on the impact of political connections on capital controls and credit access rely on either expert assessments of which companies are connected (Johnson and Mitton 2003, for Malaysia), or use firms controlled by the wealthiest families (Charumilind, Kali and Wiwattanakantang 2006, for Thailand). In a study on bank lending in Pakistan, Khwaja and Mian (2004) define a firm as "political" if its director participates in an election. In a cross-country study, Faccio (2004) defines companies to be politically connected if a controlling shareholder or director of the company holds political office.

III. Data and Methodology

Our empirical analysis requires us to undertake five major tasks:

(a) Identify politically connected firms

(b) Identify industries and commodities that are governed by import licensing requirements from government regulation manuals.

(c) Identify firms which possess licenses, what raw material they are allowed to import with that license, and what outputs they produce using that raw material.

(d) To construct an appropriate "control group" (i.e. firms without licenses), identify other firms competing in the same product categories as the firms who possess import licenses. To gauge how protective a particular license is, ascertain how many other firms doing business in that same product have been granted licenses.

(e) Gather data on firm characteristics (location, size, profits, ownership, age, etc.) and associated industry characteristics (including other tariff and non-tariff protection measures) for all firms in the licensed and non-licensed groups.

We now describe these tasks and the data generated in greater detail:

A. Identifying Connected Firms through the Jakarta Stock Exchange

For the first measure of political connections we construct, we examine how the stock price of 285 firms traded on the Jakarta Stock Exchange (JSX) responded to adverse news about Suharto's health between 1994 and 1997. Suharto suffered some health shocks during the final years of his reign which were covered by the news media. The stock prices of certain firms traded on the JSX experienced sharp drops in response to such news events. For example, on July 4th, 1996, it was announced that Suharto would leave for Germany for a medical check-up. The stock price of the firm Bimantara Citra, owned by Suharto's son Bambang Trihatmodjo, dropped by 3.6% that day, although the Jakarta Stock Exchange only fell by 0.9% in the aggregate. Between 1994 and 1997, there were 15 days in which a local Indonesian newspaper, *Bisnis Indonesia*,

reported some adverse news regarding Suharto's health. Using daily stock price data for the 985 market trading days between 1994 and 1997, we run a set of regressions of abnormal stock returns for each firm on aggregate movements in the JSX, the average return for the industry category in which that firm belongs, movements in the exchange rate and interest rate, and an indicator variable for days when the news about Suharto's health was reported by the press (see Appendix A2 for example regressions).[5] A firm is defined to be "politically connected" if the Suharto health news indicator has a negative coefficient which is significantly different from zero at the 95% confidence level. The size of this coefficient is used as a measure of the strength of the connection between this firm and Suharto.

The stock price regressions are run for 285 of the 293 firms traded on the Jakarta Stock Exchange in 1994-1997. Of these, 29 firms (10.2%) are identified as "connected" to Suharto. This set of connected firms lost 3.7% of their value due to the median "adverse health shock" for Suharto, which translates into a $2.3 million (6.2 billion Rupiah) median loss per connected firm. Our estimates for the loss in firm value attributable to the adverse health news ranged from 0.5% to 19.6%, which yields significant variation in a measure of the strength of firms' political connections. Some of the largest losses accrued to *Sinar Mas Multi Artha* (a loss of 5.5%, or $110 million per day on average) and *Bimantara Citra* (a loss of 2% or $16.7 million per day).[6] The identities of the major players in the set of politically-connected firms we identify

---

[5] We use three different definitions of firm stock returns, including the actual return, the deviation of the actual return from its average, and the abnormal return net of movements correlated with the aggregate JSX market return. We also variably define the event dates to be the day the illness occurs or the day it is reported in the press. The identities of 'politically connected' firms are roughly invariant to the particular definition of returns or event dates used.

[6] A business partner of the Suharto family, Eka Tjipta Widjaja is the principal founder of Sinar Mas, the second largest private business group in Indonesia (Pusat Data Bisnis Indonesia 1997). Sinar Mas has various joint ventures with Suharto's family including the prominent *Plaza Indonesia* mall in Jakarta.

coupled with newspaper reports about their relationships to Suharto provide good external validity of our estimation procedure.[7]

The identities of the key personnel running the 29 politically connected firms also allow us to identify, by proxy, other firms that are connected to Suharto, but not traded on the Jakarta Stock Exchange. We do this by locating all other firms that share ownership and management with those 29 firms. We first identify each member of the Board of Directors and Board of Commissioners of each of the 29 firms using the *Indonesian Capital Market Directory 1998*. We then use the publication *400 Prominent Indonesian Businessmen* to find the names of all business groups (conglomerates) to which the individuals running the connected firms belong. Finally, we turn to *Conglomeration Indonesia* to identify all subsidiary firms of the 'connected' business groups.

We restrict attention to manufacturing firms in our empirical analysis, since the *Survey of Manufacturing Firms* – an important source of data on firm characteristics - covers the manufacturing sector only. Only 16 (55.2%) of the 29 'connected' firms we identify make this restricted sample, since only 152 (53.3%) of the 285 firms traded on the Jakarta stock exchange are in the manufacturing sector. Through the procedure described in the preceding paragraph, we identify 237 manufacturing firms which are subsidiaries of the politically connected business groups.[8] These 237 firms form our

---

[7] There were a few firms in the list of 29 connected firms that we initially could not validate with external sources. For example, we were surprised by the fact that PT Charoen Pokphand Indonesia (CPIN) and the cosmetics producer PT Mustika Ratu were identified as politically connected. We later discovered that PT Mustika Ratu was involved in many joint ventures with companies owned by Suharto's children (*Conglomeration Indonesia* 1997). The Director of CPIN was recently arrested allegations of corruption worth 841 billion Rupiah (*Media Indonesia Online* 2004).

[8] The subsidiary firms of 'connected' business groups identified through *Conglomeration Indonesia* had to be merged to the 1997 *Survey of Manufacturing Firms*, which contains firm characteristics for the universe of medium and large manufacturing firms in Indonesia. Firm location, industry and size were used as matching variables in the merge, because firm identities are concealed in the survey. The connected

sample of connected firms, out of a population of 20,900 total manufacturing firms in 1997 for which we have data on firm location, size, ownership, and industry. These 20,900 firms operate in 302 different ISIC-5 digit industries.[9]

B. Suharto Family Firms

It is possible that the indicator for political connectedness described above picks up firms that are not really connected but who suffer a negative stock return response to adverse news about Suharto's health, just because they possess a license the market deems a "Suharto regime protection measure" that might be lost in the event of a regime change. It is also possible that we only pick up firms who derive the greatest benefits from their political connection. To avoid these potential problems, we report all results with alternative measures of connectedness defined on the basis of whether a member of the Suharto family is involved in running the firm.

We first (quite restrictively) define a firm as politically connected only if that firm has a Suharto family member in its Board of Management, as identified by a business consulting firm in Jakarta named Castle Group. The identifying assumption here is that being a member of the Suharto family is not endogenous to licensing. To establish a clean causal effect of being associated with the Suharto family, we would like to further rule out firms which strategically invited a Suharto family member to join its Board of

---

business groups we identify actually have 2126 subsidiaries, of which 408 are manufacturing firms. However, we are able to confidently identify the industry, number of workers and locations for these 237 firms only. We thus misclassify 171 connected firms as unconnected through this merging procedure, which probably leads to substantial downward bias in our estimated effects of connectedness on the probability of receiving licenses (i.e. because 171 connected firms that are more likely to receive licenses are coded as unconnected and become part of the control group). There is nothing systematic to the set of misclassified firms – it is simply that their location, size and industry do not uniquely identify them.

[9] The industry classification we use is the 5-digit Klasifikasi Lapangan Usaha Indonesia (KLUI). KLUI augments ISIC to accommodate industries that are specific to Indonesia, such as the Balacan Paste industry.

Directors in order to receive preferential access to licenses.[10] To this end, we further restrict our definition of the "politically connected" to only those firms that are subsidiaries of business groups that *belong to* the Suharto family. This definition includes, for example, the firm *Bimantara Citra* which was founded by Suharto's son Bambang Trihatmodjo in 1982, but it excludes the firm *PT Barito Pacific* founded by businessman P. Pangestu in 1976, who invited Suharto's daughter Tutut to join the venture only in 1992. Finally, to satisfy the more subtle concern that individuals with strong demands for licenses and protection were perhaps more likely to marry in to the Suharto family, we only examine firms that belong to Suharto's "blood relatives" (excluding those who marry in to the family).

C. Import Licensing

The two principal instruments of trade protection used in Indonesia are tariffs and import licensing. Indonesia's import licensing system is administered by the Ministry of Industry and Trade. This system classifies goods according to the type of importer permitted to import the product. In 1997, over 97% of all tariffed items were unrestricted, which means that they could be freely imported by any registered importer. 197 commodities were classified as restricted goods that only specific license holders were allowed to import. License holders are categorized in the following way:

(a) "*Producer Importers* (IP)" for a particular *raw material* are allowed to import that raw material for use in their production process;

---

[10] It has been noted in the press that many Indonesian businessmen have had to embark in joint ventures with Suharto's family, or have made a family member either a major shareholder or a member of the company's board of directors in order to receive market access and preferential treatment from the government (Tempo Interaktif 2003).

(b) "*Registered Importers* (IT)" for a particular commodity are allowed to import that commodity, either as a raw material or for sale as a final product;

(c) Designated state-owned enterprises are given "sole importer" status for certain commodities (e.g. BULOG for some food items).

Comprehensive import licensing regulation was established in 1987. Licensing decisions were made on a firm-by-firm or product-by-product basis before 1987, and mainly state-owned enterprises held licenses. The number of commodities subject to import licensing has progressively fallen from 650 in 1991 to 381 in 1993 and to 197 in 1997 (see Table 1). Despite this reduced commodity coverage, the share of domestic production covered by restrictive licenses remained steady at around 22% between 1991 and 1995 (GATT, 1995). In 1997, 91% of the 197 commodities subject to licensing were manufacturing products from 49 different industries. Of these, 31% are for metal products, followed by food (22%) and basic metals (17%).

Using data from the Directorate General of Customs and Excise for 2000, we identify the entire set of IP and IT importers, and the commodities for which each of these firms holds the import license. Although only 42% of government import licensing regulations apply to raw materials (IP) imports, 90% of all licenses are awarded for such imports. There are 337 license holders in our sample of 20,900 manufacturing firms, and these license-holders have production activities in 104 different ISIC-5 digit industries.[11]

Issuing an import license to a firm is more protective if not many competitor firms are granted a license to import that same commodity. Similarly, giving a firm several IP licenses (so that the firm can import several different raw materials used in their

---

[11] Although there are 506 total import license-holder manufacturing firms in Indonesia, our process of merging by firm location, industry and size (see footnote 8) allowed us to identify the industry, number of workers and locations for only 337 licensed firms.

production process) is more protective than granting the firm fewer licenses. To examine the varying degrees of protection received by license-holders, we create more refined measures of licensing protection that take into account the number of licenses a firm has, as well as the number of competitor firms who are also awarded the same licenses. The three types of licensing protection measures used in the empirical analysis are:

(a) Indicator variable for firms which have at least one license,

(b) Count of the number of licenses each firm has, and

(c) Inverse of the number of license holders for that commodity (with zeros assigned to non-licensed firms). The maximum value of 1 for this measure would indicate that the firm is a monopoly importer of that commodity.[12]

Variation in the numbers of IT and IP license holders for different commodities generates variation in the extent of licensing protection within the set of protected firms. Certain firms are assigned sole license-holder status for some food products, while over 30 firms are allowed to import polypropylene. Our measures therefore code certain food importers as more protected than the importers of polypropylene.

D. Measures of Industry-Level Protection

To create a measure of tariff protection for each industry, we collect data on tariff rates in May 1997 for 9,324 HS-9 commodities from the Tariffs Team of the Ministry of Finance in Jakarta. We then match each of these commodities to one of 266 ISIC-5 digit

---

[12] If a firm has more than one license, then we compute the inverse of the number of "approved importers" of each commodity it possesses an import license for, and then use the maximum value of these numbers across different commodities. As an alternative, we sum the inverses instead of taking the maximum value. These measures ensure that all else equal, firms with multiple licenses will be more likely to have greater values for protection than firms with a single license.

industries, and create an industry average nominal tariff variable. Thirteen of these industries (5%) have zero tariff protection.

Following Goldberg and Maggi (1997) we compute the coverage ratio for non-tariff barriers (CR-NTB) in each industry as $\sum_k n_k^i w_k^i$, where the indicator variable n_k^i equals one if product k in HS-9 digits is covered by some non-tariff barrier (licensing and/or import prohibition), the weight w_k^i is the import share of product k relative to the total freight-on-board (FOB) value of all imports in the ISIC-5 digit industry i, and we sum over all k products in industry i.[13]

E. Control Variables

We use firm characteristics relating to age, ownership, size, profits, productivity, etc., obtained from the *Survey of Manufacturing Firms* (Statistics Indonesia, 1997) as control variables.[14] This dataset reports the location of each firm, which allows us to control for province fixed effects in all regressions. Firms in our sample are located in all 27 provinces of Indonesia, spread out over six islands. Close to 80% of the firms are located in Semarang, Jakarta, and Surabaya, which are the three major cities on Java island. The Manufacturing Survey reports the 5-digit industry in which each firm operates, which allows us to control for industry fixed effects. The survey also contains

---

[13] Other types of non-tariff barriers such as marketing and pricing arrangements, local-content requirement, and investment controls also exist in Indonesia (GATT 1995). Our CR-NTB measure is based on licensing and import prohibition, which are the most common non-tariffs barriers used in manufacturing sector. As a sensitivity check, we calculated an ISIC-3 digit level CR-NTB based on all types of non-tariff barriers. The results don't change substantially under this alternate measure.

[14] This is a census of all manufacturing plants with more than 20 employees. Thus we actually have disaggregated "plant" specific characteristics, but the main variables of interest in the empirical analysis (political connections and licensing indicators) are measured at the firm-level, and so we refer to our data as 'firms' rather than 'plants' for ease of exposition.

information on the number of workers employed, wage payments, total value of production and value added, profits, value of exports, firm age, and ownership structure.

We compute the total factor productivity (TFP) for each firm as the residual of a Cobb-Douglas production function. Following Levinsohn and Petrin (2002), we use intermediate inputs (i.e. electricity and fuel) as instruments for unobserved productivity shocks.[15] As sensitivity checks, we use other partial measures of productivity such as output per worker and value added per worker. We measure profitability as profits divided by firm fixed assets. As alternatives, we use profits per unit investment and profits divided by the sum of investment, fixed assets and inventory.

IV. Empirical Analysis of Licensing and Political Connections

A. Summary Statistics

Panel A of Table 2 reports summary statistics for firm level variables across three different samples used in the regression analysis. The first sample consists of 20,900 manufacturing firms operating in 302 ISIC 5-digit industries. The third sample consists of only firms in the 49 industries that, according to government regulation manuals, contain the commodities that fall under import licensing regulation. The licensed firms in these 49 industries use their imported raw materials to produce multiple commodities which span a total of 104 industries. Since firms producing in all 104 industries compete

---

[15] To compute TFP, we estimate production functions with data on logged revenues, labor, capital stock, electricity, raw materials, and fuel for the period 1990-2000. Labor and raw materials are treated as free (variable) inputs. Electricity and fuel (rather than investment) proxy for unobservable productivity shocks, since investment is lumpy and many sample firms report zero investment in any given year. Capital is measured as the current value of firm fixed assets which include buildings, machinery and vehicles. All nominal variables are adjusted using wholesale price indices for manufacturing commodities. Production functions are estimated separately for 31 ISIC 3-digit industries using a total of 181,472 observations. We use the Stata program described in Levinsohn, Petrin and Poi (2003).

with the set of licensed firms, the 9596 firms in these 104 industries form our second sample. Most of the results we report are based on this 9596-firm sample.

Only 1.6% of the firms in our large 308-industry sample are licensed. This ratio increases to 3.5% in the 106-industry sample, and further to 4.2% in the 49-industry sample. Similarly, only 1% of firms are 'politically connected' in the large sample, but larger fractions of the smaller samples (2% and 4% respectively) are connected. The annual production of the average firm in the 9596-firm sample is valued at 16.7 billion Rupiah (US$5.6 million), with profits around 6.3 billion Rupiah (US$2.1 million) in 1997. These firms export about 10% of their output and were about 13 years old on average in 1997. The vast majority of these firms are largely privately owned. Panel B compares the characteristics of licensed and non-licensed firms. Across all measures of political connections, licensed firms are 10-20 times more likely to be 'connected'. Licensed firms are also larger and more profitable.

Panel C of Table 2 presents summary statistics for industry aggregates. About a third of all industries have a connected firm, and 29% are organized through a trade association. In the raw data, there does not appear to be any statistically significant difference in tariff rates or CR-NTB across industries with and without a connected firm.

B. Impacts of Licensing and Political Connections

Table 3 compares changes in production, total profits, total factor productivity and profitability from 1990 to 1997, between licensed, politically connected, and un-connected firms. We show difference-in-difference means tests in the raw data, based on manufacturing firms in existence in both 1990 and 1997.

Licensed firms experienced larger increases in production and profits between 1990 and 1997 compared to un-licensed firms. These impacts of licensing appears to be limited to a size effect, as the relative changes in total factor productivity or profitability are not significantly different from zero. Comparing licensed firms that are connected to Suharto against licensed firms that are not connected, we find that connected firms grew relatively larger over this period, but the sample available for these comparisons is small.

The bottom panel in Table 3 shows that in 1990, un-connected firms which eventually received licenses were larger in size and profits than firms that remained un-licensed. This is merely suggestive that firms without a 'connection' to Suharto that ultimately received licenses probably had a better ability and willingness to bribe.

C. Regression Results: The Impact of Political Connections on Licensing

Table 4 reports results of linear probability models of the likelihood that firms are given an import license for any commodity.[16] The coefficient of interest is on the indicator for whether the firm is politically connected to President Suharto, which is first constructed using the 3-step procedure that involves examining firm stock price responses to adverse news about Suharto's health, identifying the businessmen running each of those firms, and the conglomerates controlled by those businessmen.

All regressions control for province fixed effects of the firm's location and 3-digit industry fixed effects. The regressions in table 4 use different "control group" firms (i.e. they include different sets of non-licensed firms). The sample for specification 1 includes all 20,900 manufacturing firms. We find that firms that are politically connected are 15.4

---

[16] Our dependent variable has a low mean and the LPM is therefore not the most appropriate estimation technique. The LPM results are presented first just to make the comparison of coefficients across variables easier. Most models we run, reported in Table 5, use Probit estimation

percentage points more likely to possess an import license compared to other firms, and this effect is statistically significant at the 99% confidence level. This represents about a 10-fold increase at the mean in the likelihood of receiving a license.

We control for other firm characteristics, such as profits, productivity, size and ownership. These characteristics are potentially endogenous, since protection may have itself allowed these firms to become larger or more profitable. However, the main focus of this research is on examining the impact of political connections on licensing protection, and we merely want to check whether this impact is invariant to the inclusion of other firm characteristics. We want to guard against the possibility that, say, the 'political connections' indicator picks up the effect of firm size. We exclude other firm characteristics in specification 4, and show that the effect of political connections on licensing becomes even larger, and the effect is qualitatively invariant to the inclusion or exclusion of potentially endogenous firm characteristics.

The control variables indicate that larger firms are more likely to possess an import license. A 10% increase in the value of production improves the probability of getting a license by about 11 percentage points. Firms with larger profits are also more likely to be given "approved importer" status. Every 100 billion Rupiah (approximately US$30 million) increase in annual profits is associated with a 1.5 percentage point increase in the probability of receiving a license. The impact of being politically connected is clearly large relative to the effects of even large changes in these other control variables. Interestingly, we find no evidence that a firm's total factor productivity increases the likelihood of an import license. The government appears to selectively protect firms based on their political connections rather than firm fundamentals.

Specification 3 truncates the sample to include only firms with at least 100 workers. Small firms are probably less likely to have a strong demand for an import license. In addition, Suharto and his family have less use for forming relationships with small firms with limited bribing or profit-sharing capacity. These two facts together could bias the impact of political connections on licensing protection upward in a regression where small firms with no demand for an import license are in the sample. Excluding small firms reduces the coefficient of political connections. In the sample of firms that employ more than 100 workers (the largest 30% of firms), the politically connected are 13 percentage points more likely to receive a license than other firms.

In specification 4 we restrict our sample to 9596 firms operating in the 104 industries that have at least one licensed firm. Only firms competing in the market with a license-holder is included in this regression. This is another attempt on our part to exclude firms that may not have a demand for a license. In this sample, connected firms are 21 percentage points more likely to receive a license than other firms.

In specification 5 we further restrict our sample to only firms in the 49 industries that contain commodities directly governed by import licensing. This is an overly restrictive definition of the non-licensed control group, since firms competing with the set of licensed firms in the output market, but not necessarily producing in the industry where the particular raw material being imported through the license, are being excluded. Even in this sample we find that connected firms are 13 percentage points more likely to be licensed, and this effect is statistically significant.

Table 5 repeats the import licensing – connections regressions on the 9596-firm sample using Probit estimation with the same set of control variables as in table 4, but reports only the average marginal effect of political connectedness. This table therefore shows the results of 35 different regressions, where we change the definition of political connections down the rows, and alter the measure of licensing protection across columns.

As expected, magnitudes of impacts are smaller across the board in Probit regressions than they are in the linear probability models. Politically connected firms identified through the JSX event study are 5.7 percentage points more likely to be licensed, and the effect is significant at the 99% confidence level. Column (B) examines only IP license-holders (raw materials importers) and their competitors, and connected firms are 5.2 percentage points more likely to receive an IP license.

In columns (C) and (D), we replace the licensing indicator with measures of the stringency of licensing protection. By these measures, a firm is *more* protected if there are fewer other license-holders for the same commodity, and if the firm has a larger number of licenses for different commodities. Being politically connected reduces the number of *other* (competitor) license holders in the same industry by 2 firms (or 15% at the mean of 13 license-holders in each industry).[17] In a Poisson model of the count of licenses for each firm (column E), being politically connected raises the expected number of licenses by 0.042. This represents an 80% increase at the mean, since the average number of licenses held by this sample of firms is about 0.05.

---

[17] In another specification whose results are not reported in the tables, we augment the dependent variable using the idea that licensed firms are relatively more protected in a many-firms-industry than in a few-firms-industry. This alternate measure of protection multiplies the licensing indicator with the proportion of non-licensed firms in the industry. We find that being connected has a statistically and quantitatively significant impact on this measure in the expected direction.

Row (7) replaces the political connections indicator with a measure of how close the relationship between Suharto and the connected firms are. This measure is based on the percentage loss in firm value in the Jakarta Stock Exchange attributable to "bad health news" for Suharto. The effect of political connections continues to be statistically significant, but it is difficult to meaningfully interpret this coefficient. The elasticity of the licensing probability with respect to the measure of the 'strength of political connections' appears to be small.

E. Suharto Family Businesses

One concern about the results linking political connectedness to licensing may be that both connections and the assignment of licenses are somehow simultaneously determined. Managers of firms that would benefit from licenses became politically connected, either through bribes or by marrying into the Suharto family, and then received the required licenses. While we are not too concerned about this type of a simultaneous mechanism since it is still consistent with the corrupt trade protection story we have constructed, it is worthwhile to note that external evidence from newspaper and magazine articles make this mechanism unlikely. Press reports indicate that the relationships between Suharto and the 'politically connected' individuals our estimation procedures identify were formed over many years, and usually pre-date the introduction of the 1991 import licensing regulations whose effects we are studying. This is of course true for Suharto's children and other relatives who run some connected firms, but also for other prominent 'connected' businessmen, including Salim of Salim Group, Eka Tjipta Widjaja of Sinar Mas Group, and Bob Hasan of Nusamba Group (Asiaweek 1996, Colmey and Liebhold 1999). Salim's and Hasan's associations with Suharto began when

they were suppliers for the Army's Diponegoro Division in the 1950s, at a time when General Suharto was the division's commander (Aditjondro 1998a). Once Suharto became President of Indonesia, his fortunes began to soar along with those associates.

It is still possible that the first step of our method of identifying connected firms (i.e. the firm-specific stock price regressions) picks up firms that are not really connected but who suffer a negative stock return response to adverse news about Suharto's health, just because they possess a license the market deems a "Suharto regime protection measure" that might be lost in the event of a regime change. We therefore report all results with alternative measures of connectedness that (quite restrictively) define as 'connected' only the subset of firms with a direct relationship to a relative of Suharto either through ownership or management. All "crony firms" managed by Suharto's business associates but not relatives are treated as 'not connected' in these measures, which probably biases downward the differences in outcomes between the connected and un-connected.

We know the identities of people on the Board of Management (BOM) of each firm, and the regressions in row 8 define a firm as connected only if a Suharto family member is on the BOM. The effect of a connection on the probability of receiving a license almost doubles to 9.4 percentage points under this definition. The effects on the license count or the number of competitors who receive the same license remain large.

In order to further rule out firms which may have strategically invited a Suharto family member to join the board in order to receive access to licenses, the regressions in row (9) define as connected only those firms owned and operated by the Suharto family since inception. The effect of connections on licensing reduces to 4.2 percentage points,

and remains statistically significant. The effect on the probability that competitors hold the same license reduces in magnitude and becomes insignificant. This is indicative that some firms probably invited Suharto family members to join their board in order to receive preferential treatment.

Row (10) further removes firms owned by Suharto's in-laws from the list of connected firms, in case these individuals married into the Suharto family in order to receive preferential access to licenses. Even in this set, the impact of connectedness on licensing probability remains steady at around 5.5-5.9 percentage points.

Row 11 exploits the detailed information we have on each firm's ownership to create a 6-point index of the degree of connectedness. Firms owned by people born into the Suharto family receives the highest score, firms owned by his in-laws the next highest score, and these are followed by firms with a Suharto family member in the BOM, firms affiliated with businessmen (non-relatives) classified by Basri (2001) as "well-connected" because they are involved with the Suharto family in many joint ventures, and finally others firms identified as connected through our stock exchange regressions. A one-point increase in this scale of connectedness is associated with a 7-7.6 percentage point increase in the probability of receiving a license, and a decrease of 1.6 (50%) in the number of competitor firms holding the same license.

In row 12 we simultaneously control for two measures of political connections: (a) firms with a Suharto family member in the BOM, and (b) other firms identified as connected through the JSX event study. Both types of firms are significantly more likely to receive licenses compared to the control group firms. Regardless of the particular

measure of political connections used, it appears that the Suharto regime was much more likely to assign restrictive import licenses to connected firms.

F. Political Connections and Firm Size

Figure 1 shows how the impact of political connections on licensing varies across different types of firms. These graphs depict the marginal effect of connectedness from regressions that add interaction terms between the connections indicator and measures of firm production, total profits, total factor productivity, and profit rate. We would expect political connections to have more of a positive impact on licensing for larger and more profitable firms, since the gains to the corrupt relationship between Suharto and business-owners are larger when the stakes are higher. This is simply a scale effect: the value of a license is probably greater for larger firms, and size of the kickback the Suharto family can expect to receive from a larger firm is correspondingly bigger.

There does appear to be some non-linear impacts of political connections on the likelihood of licensing. The top panel of Figure 1 plots the marginal effect of the political connection indicator against the value of firm production. In the largest 10% of firms, being connected increases the probability of a license by 15 percentage points.

G. Industry-Level Regressions of Tariffs and Licenses

Table 6 aggregates data up to the ISIC 5-digit industry level and replicates the "protection for sale" regressions reported in prominent empirical papers in this literature. Following Mitra, Thomakhos and Ulubaşoğlu (2002), we proxy for an industry's lobbying efforts using an indicator for industries organized through a trade association. In

some specifications we replace this variable with an indicator for 'connected' industries defined as industries with at least one politically connected firm.

Following the structural equations derived in Grossman and Helpman (1994), our two dependent variables are non-linear transformations of the average nominal tariff rate for the industry and the coverage ratio for non-tariff barriers. The list of regressors follows specifications in Goldberg and Maggi (1997), Gawande and Bandyopadhyay (2000) and Bombardini (2005). We use import demand elasticity estimates generated by Kee, Nicita and Olarreaga (2004). We treat the import-penetration ratio as endogenous (as argued in Trefler (1993), higher tariffs may reduce penetration) and following the literature, instrument with factor shares (fixed assets including land, machines, buildings, inventory capital) and the skill base of workers (managers, engineers, low skilled etc.).

Table 6 reports results of 'Protection for Sale' regressions in the structural form suggested by Grossman and Helpman (1994), and we follow the version of the model estimated by Gawande and Bandyopadhyay (2000). The coefficients of interest are on the ratio of the inverse of the import penetration ratio to import demand elasticity (z/e in the notation commonly used in this literature), and the product of this variable with the proxy for the industry's lobbying efforts ($I*z/e$). The coefficient on z/e is expected to be negative and the coefficient on ($I*z/e$) positive, since the theoretical prediction is that protection decreases (increases) with import penetration for industry lobbies that are (are not) organized.

The estimated coefficients in the tariffs equation are quite small and also not significantly different from zero, irrespective of whether the presence of industry trade associations or the presence of connected firms proxy for industry lobbying. The

coefficient estimates are larger in the non-tariff barriers equation, but their signs run counter to the predictions of the Grossman-Helpman model. In summary, there is no statistical evidence that organized industries in Indonesia are more likely to be protected by tariffs or non-tariff barriers in ways predicted by a political economy model of lobbying and protection. The same conclusion holds when industries are defined as 'connected' rather than 'organized', which is not surprising since "political connectedness" is really a firm-level concept in Indonesia, and political protection is typically not aimed at industries as a whole. This underscores that firm-level analysis of political protection is likely to be more informative than industry-level analysis in a developing country setting.

V. Welfare Costs of Licensing Protection

This paper has thus far demonstrated that trade protection in Indonesia is firm-specific, and that the Suharto regime was more likely to assign valuable trade licenses to "politically connected" firms. While these results are important in themselves because they shed light on the nature of corrupt trade protection in developing countries, we would like to dig deeper and ask whether such a system of political protection imposes a welfare cost on Indonesian society.

At an intuitive level, it appears likely that assigning licenses to individual firms based on connections would create larger welfare losses compared to other industry-level or economic-wide protection measures. Such licenses confer oligopolistic powers to privileged importers, reduce domestic manufacturers' options for obtaining imported

inputs, and raise domestic costs of imports. Any non-competitive mechanism for assigning import licenses often protects inefficient businesses.

Documented cases from specific industries in Indonesia are broadly supportive of such intuition. Jones and Pura (1986) report that a monopoly for imports of cold-rolled sheet and steel raised domestic steel prices to 25%-45% above international levels, which forced downstream industries to pay higher costs for their inputs. Appointing one firm as sole agent for all imports of essential raw materials for the plastics industry added 15% - 20% to the cost of raw materials for Indonesian plastics manufacturers. Similarly, the price of sugar in Indonesia was 43% higher than in neighboring countries (Kwok 1997). Stories abound of consumers and downstream industries in Indonesia paying higher prices due to import licensing regulation in the wheat, rice, tin-plate, and oil industries.

Panel A of Table 7 examines whether market concentration is related to licensing, by comparing a measure of industry concentration from pre-licensing (1990) and post-licensing (1997) periods across licensed and un-licensed industries. The market share of the four largest firms in licensed industries increased by 11 percentage points on average between 1990 and 1997 (a statistically significant increase), while the corresponding increase in industries not subject to licensing was 5 percentage points.[18]

Greater market concentration is not necessarily welfare reducing if there are returns to scale in production and if the most productive firms gain market share. Panel

---

[18] Our data indicate that 31.5% of our licensed firms were among the top-4 producers in their respective industries in 1997, a significant increase from 16% in 1990. However, licensing does not automatically endow firms with greater market share. Between 1990 and 1997, PT Nestle Indonesia, a firm affiliated with Suharto's son, replaced PT Mirota (whose market share declined from 20.6% to 1.3%) as the dominant player in the milk industry, although both firms were assigned licenses in 1991. Import activity data reveals that PT Nestle Indonesia was permitted to carry out 191 import transactions of 12 licensed imported commodities in a year, ranging from processed whole milk, buttermilk to sugar. In contrast, PT Mirota only had 10 transactions of 2 licensed commodities necessary for its production.

B in Table 7 examines the change in the correlation between firm market share and output per worker (a partial measure of firm productivity) between 1990 and 1997 across licensed and un-licensed industries. This correlation declined from 0.41 to 0.25 for licensed industries during this period, while it increased for un-licensed industries from 0.23 to 0.29. It is therefore unlikely that the most productive firms were chosen for protection by the Suharto-era licensing system. When we replace output per worker with the estimated total factor productivity in figure 2, a similar picture emerges. Annual data between 1990 and 1997 indicates that the correlation improved in unlicensed industries, while it decreased slightly in licensed industries.

To build a final piece of corroborative evidence on the nature of firms chosen for protection, we compare financial statements of politically connected firms traded on the JSX to un-connected firms, and show that connected firms suffered larger losses during the 1998 Asian Financial Crisis.[19] This has a welfare cost because efficiency would require that the government in assigning licenses, seek out firms with the most solid underlying fundamentals rather than protect the politically connected. This evidence should be viewed as merely suggestive, since there are reasons other than inefficiency why those firms may have collapsed. Suharto resigned following the crisis, and firms with licenses may have faced greater exposure due to the fact that they were more integrated into the global economy.

From financial statements data for all 279 firms traded on the JSX in 1997 and 1998, we find that the 27 'connected' firms suffered an average loss (negative profits) of

---

[19] Scholars have argued that the adverse effects of the 1997-98 Asian financial crises were exacerbated in Indonesia because bad investment decisions were made initially on the basis of the political connectedness of certain firms. The fact that investment decisions were not based on firms' underlying fundamentals led to the massive outflow of foreign capital during the crisis (Fisman 2001).

907.3 billion Rupiah (around $90.7 million) in 1998, a significant decline from the loss of 3.9 billion Rupiah in 1997. Un-connected firms recorded losses of 515.2 billion Rupiah on average in 1998, up from 9 billion Rupiah a year earlier. Some back-of-the-envelope calculations are suggestive of how large these excess losses were for the entire Indonesian economy. If the connected firms had the same percentage decline in profits as the un-connected firms, the total loss across all connected firms traded on the JSX that could have been avoided would be 681.6 billion Rupiah, or 75 percent of the actual loss. If we extrapolate these numbers to all manufacturing firms, a very rough estimate of losses to the entire Indonesian economy is 4.2 trillion Rupiah, which amounts to about 0.44% of Indonesian GDP in 1998.[20] This number is only meant to be suggestive, not definitive, since arriving at this number required us to make some heroic assumptions. It does suggest, however, that the welfare costs of the corrupt, nepotistic system of trade protection were substantial for Indonesia. At the same time, this cost dwarfs in comparison to the high levels of GDP growth during the Suharto-era.

VI. Conclusion

The central argument of this paper is that political trade protection in developing countries has to be analyzed and understood at the firm level. We carry out an intensive data gathering exercise in order to try and convincingly make this simple point. We create firm-specific indicators of connections and licensing for a large developing

---

[20] Total profits of all manufacturing firms in Indonesia were around 138.2 trillion Rupiah in 1998, and 16.54 percent of this amount (around Rp. 22,867 billion) was contributed by licensed firms. 24.36 percent of licensed firms' profits are contributed by 'connected' firms, so that this very, very rough calculation suggests that the total excess loss that could have been avoided from corrupt licensing across all manufacturing firms is about 4.2 trillion Rupiah (138.2 trillion x 0.1654 x 0.2436 x 0.75).

country, and add to the substantial literature on the political economy of protection that has focused on industry-average tariffs and non-tariff barrier coverage ratios. We show that even though licensing requirements may be simple on paper, a very special set of firms are ultimately awarded licenses to import raw materials in Indonesia.

On the politics side, previous research has used either reported campaign contributions or union-membership based measures of how organized industries are. As far as political corruption is concerned, campaign contributions or organized industries are at best second-order concerns in developing countries. Bribery and nepotism are of first-order importance, and even though these are not directly observed, we are able to use adverse health shocks to Suharto and identities of Suharto family owned firms as instruments to identify the strength of political connections between individual firms and a key trade and industrial policy maker.

While there is strong evidence of political protection at the firm level, industry-wide protection in terms of tariff and non-tariff barriers do not appear to be systematically correlated to the political characteristics of industries. The distinction between firm and industry protection has practical significance, since the form of political protection practiced in developing countries is possibly more insidious than tariff-setting. There is both anecdotal and statistical evidence that costs to consumers and downstream producers increase, markets become more concentrated (and monopolies are often created), and the correlation between productivity and market share decreases.

References

Aditjondro, George (1998a). "Autumn of the Patriarch. The Suharto Grip on Indonesia's Wealth," *Multinational Monitor*, Essential Information, Inc, January/February, Vol. 19. http://multinationalmonitor.org/mm1998/mm9801.06.html

Aditjondro, George (1998b). "Soeharto Inc," *The Sydney Morning Herald*, Sydney, April 6.

Asiaweek (1996). "The Suharto Inc. Network. All the President's Men -- and Women," August 9. http://www.asiaweek.com/asiaweek/96/0809/cs3.html

Basri, M. C. (2001). 'The Political Economy of Manufacturing Protection in Indonesia', 1975-1995. *Unpublished Ph.D thesis.* Australian National University, Canberra.

Bisnis Indonesia, Jakarta, 1994-1997.

Bombardini, Matilde (2004). "Firm Heterogeneity and Lobby Participation," mimeo, MIT.

Charumilind, Chutatong, Raja Kali and Yupana Wiwattanakantang (2006). "Connected Lending: Thailand Before the Financial Crisis," *Journal of Business*, 79 (2), March.

CISI Raya Utama (1993). *A Study on 400 Prominent Indonesian Businessmen 1993/1994*. Jakarta.

Colmey, John and David Liebhold (1999). "The Family Firm," *Time.com*, May 24. http://www.time.com/time/asia/asia/magazine/1999/990524/cover2.html

Ederington, Josh and Jenny Minier (2003). "Reconsidering the Empirical Evidence on the Grossman-Helpman Model of Endogenous Protection," mimeo, University of Miami.

Eicher, Theo and Thomas Osang (2002). "Protection for Sale: An Empirical Investigation: Comment," *American Economic Review*, 92(5): 1702-1710.

Esfahani, Hadi Salehi (2005). "Searching for the (Dark) Forces Behind Protection," *Oxford Economic Papers*, 57 (2): 283-314.

Faccio, Mara (2004). "Politically Connected Firms: Can They Squeeze the State?" unpublished paper, University of Notre Dame.

Findlay, R. and Wellisz, S. (1982). "Endogenous Tariffs, the Political Economy of Trade Restrictions and Welfare." In Bhagwati, J. (Ed) *Import Competition and Response*. Chicago: University of Chicago Press/NBER, 223-34.

Fisman, Raymond (2001). "Estimating the Value of Political Connections." *American Economic Review*, 91: 1095-1102.

General Agreement on Tariffs and Trade (GATT) (1991-1993). "Trade Policy Review, *various countries*, *various years*," Volume I, Geneva.

General Agreement on Tariffs and Trade (GATT) (1995). "Trade Policy Review, Indonesia, 1995," Volume I, Geneva.

Gabungan Importir Nasional Seluruh Indonesia (1987). "*Indonesian Importers 1987*," Jakarta.

Gawande, Kishore and Usree Bandyopadhyay (2000). "Is Protection for Sale? Evidence on the Grossman-Helpman Theory of Endogenous Protection." *The Review of Economics and Statistics* 82: 139-152.

Goldberg, Pinelopi K. and Giovanni Maggi (1999). "Protection for Sale: An Empirical Investigation." *American Economic Review*, 89(5): 1135-1155.

Grossman, Gene and Elhanan Helpman (1994). "Protection for Sale," *American Economic Review* 84: 833-850.

Henderson, J. Vernon and Ari Kuncoro (2004). "Corruption in Indonesia," NBER Working Paper No. 10674, August.

Hillman, A.L. (1989). *The Political Economy of Protection.* Chur: Harwood Academic Publishers.

Institute for Economic and Financial Research (1998). "*Indonesian Capital Market Directory 1998,*" Ninth Edition, Jakarta.

Jakarta Post (1997). "BULOG's Monopoly to End," *Jakarta Post*, Jakarta, August 21.

Johnson, Simon and Todd Mitton (2003). "Cronyism and Capital Controls: Evidence from Malaysia," *Journal of Financial Economics* 67: 351-382.

Jones, Steven and Raphael Pura (1986). "All in the Family: Indonesian Decrees Help Suharto's Friends and Relatives Prosper–But Monopolistic Practices, Said to Stifle Industry, Sap the Nation's Economy–President's "Sawab" is Handy." *The Wall Street Journal*, November 24.

Kee, H. Looi, Alessandro Nicita and Marcelo Olarreaga, (2004). "Import Demand Elasticities and Trade Distortions." *CEPR Discussion Papers No. 4669*. Center for Economic and Policy Research. London.

Kwok, Yenni (1997). "How to Grow a Market. Removing Controls on Wheat is a Big Step." *Asiaweek*, November 14. http://www.pathfinder.com/Asiaweek/97/1114/biz2.html

Levinsohn, James and Amil Petrin (2003). "Estimating Production Functions Using Inputs to Control for Unobservables." *Review of Economic Studies*, 70(2): 317-341.

Levinsohn, James, Amil Petrin and Brian Poi (2004). "Production Function Estimation in Stata Using Inputs to Control for Unobservables." *Stata Journal*, 4(1): 113-123.

Leuz, Christian and Felix Oberholzer-Gee (2003). "Corporate Transparency and Political Connections," unpublished paper, University of Pennsylvania.

Magee, S. P., Brock, W.A. and Young, L. (1989). *Black Hole Tariffs and Endogenous Policy Theory.* Cambridge: Cambridge University Press.

Magiera, Stephen L. (1993). "Grain Quality as a Determinant of Wheat Import Demand: The Case of Indonesia." Economic Research Service U.S. Department of Agriculture. A report for Agency for International Development. ECG, USAID/Jakarta.

McCalman, Phillip (2004). "Protection for Sale and Trade Liberalization: an Empirical Investigation." *Review of International Economics*, 12(1): 81-94.

Media Indonesia Online (2004). "*Polisi Menahan Lima Tersangka Kasus Korupsi Pakan Ternak,*" 15 January. http://mediaindo.i2.co.id/berita.asp?id=35943

Mitra, Devashish, Dimitrios Thomakos and Mehmet Ulubaşoğlu (2002). "Protection for Sale in a Developing Country: Democracy vs. Dictatorship. *The Review of Economics and Statistics* 84: 497-508.

Olken, Benjamin (2005). "Monitoring Corruption: Evidence from a Field Experiment in Indonesia," mimeo, October 2005.

Olken, Benjamin (2006). "Corruption and the Costs of Redistribution: Micro Evidence from Indonesia," *Journal of Public Economics*, 90 (4-5), pp. 853-870, May 2006..

Pusat Data Bisnis Indonesia (1997). *Conglomeration Indonesia*. 3rd Edition. Volume 1, 2 and 3. Jakarta.

Rodrik, Dani (1995). "Political Economy of Trade Policy." In Grossman, G. M. and Rogoff, K. (Ed) *Handbook of International Economics.* Volume III. Netherlands: Elsevier Science BV.

Statistics Indonesia (1996). "Indonesia Foreign Trade Statistics," Jakarta.

Statistics Indonesia (1997). "Large and Medium Manufacturing Survey," Jakarta.

Tempo Interaktif (2003). "*Tidak Benar the Gang of Four Bubar*," March 2. http://www.tempointeraktif.com/harian/wawancara/waw-Sudwikatmono01.html

Transparency International (1998). "Suharto's Family Must Return Looted Wealth," *TI Press Release*, Berlin, May 25.

Transparency International (2004). "Corruption Perception Index." Berlin, http://www.transparency.org/surveys/index.html#cpi

World Trade Organization (WTO) (1998-2001). "Trade Policy Review, *various countries*, *various years*," Volume I, Geneva.

Table 1. Commodities subject to Import Licensing Requirements: 1991-1997

Number of Commodities	Year in which Licensing Regulation Released					
	1991[a]	1993[b]	1994[c]	1995[d]	1996[e]	1997[f]
A. Based on License Type/Holder:						
1. IT (Registered Importer)	321	110	112	108	90	90
2. IP (Producer Importer)	165	116	110	52	55	51
3. BULOG (the Food Logistic Agency)	43	32	32	30	21	19
4. BPPC (the Clove Support and Marketing Board)	-	-	-	2	2	2
5. Pertamina (the State Oil Producer)	3	3	3	3	3	3
6. Dahana/MNK (the State Explosives Company/Multi Nitrotama Kimia)	2	3	3	4	4	4
B. Based on Sector:						
Agriculture commodities	38	15	15	25	18	18
Manufacturing commodities	612	366	282	190	192	179
1. Food	58	68	73	60	41	40
2. Textile	228	2	2	6	16	16
3. Wood	-	-	-	-	-	-
4. Papers	1	1	1	9	9	9
5. Chemicals	15	21	21	21	21	25
6. Non-metal minerals	-	-		-	1	1
7. Basic metals	165	163	86	16	38	31
8. Metal products	145	108	99	76	64	55
9. Other	-	3	-	2	2	2
Total	650	381	297	215	210	197

[a]Decree of the Minister of Trade No. 135/KP/VI/1991 on June 3, 1991

[b]Decree of the Minister of Trade No. 209/KP/1993 on October 23, 1993

[c]Decree of the Minister of Trade No. 125/KP/VI/1994 on June 24, 1994

[d]Decree of the Minister of Trade No. 155/Kp/VII/95 on July 18, 1995

[e]Decree of the Minister of Industry and Trade No. 14/MPP/SK/I/96 on January 25, 1996

[f]Decree of the Minister of Industry and Trade No. 230/MPP/Kep/7/97 on July 4, 1997

Table 2. Summary Statistics

Panel A: Firm Level Data						
Variables	All Firms (20900 firms in 302 industries)		Firms in Industries which have at Least 1 Licensed Firm (9596 firms in 104 industries)		Firms in Industries Governed by Import License Regulation (1868 firms in 49 industries)	
	Mean (Std. Dev.)	Range	Mean (Std. Dev.)	Range	Mean (Std. Dev.)	Range
LICENSING PROTECTION						
Firm Granted an Import License (Indicator)	0.016 (0.13)	(0-1)	0.035 (0.18)	(0-1)	0.042 (0.20)	(0-1)
Firm Granted an IT License (Indicator)	0.002 (0.04)	(0-1)	0.004 (0.06)	(0-1)	0.006 (0.080)	(0-1)
Firm Granted an IP License (Indicator)	0.015 (0.12)	(0-1)	0.034 (0.18)	(0-1)	0.04 (0.20)	(0-1)
Degree of Licensing Protection (1/No. license holders - max value in case of multiple licenses)*100	0.13 (2.6)	(0-100)	0.28 (3.83)	(0-100)	0.40 (3.94)	(0-100)
Degree of Licensing Protection (1/No. license holders - sum across in case of multiple licenses)*100	0.16 (3.22)	(0-200)	0.35 (4.74)	(0-200)	0.56 (5.24)	(0-141.67)
Number of Licenses Held per Firm	0.02 (0.210)	(0-6)	0.05 (0.31)	(0-6)	0.07 (0.40)	(0-6)
POLITICAL CONNECTION						
Firm is Politically Connected based on stock market regressions (Indicator)	0.01 (0.110)	(0-1)	0.02 (0.13)	(0-1)	0.04 (0.19)	(0-1)
Degree of Firm's Political Connection ("Suharto ill" coef. in stock market regs)	0.0005 (0.01)	(0-0.2)	0.001 (0.01)	(0-0.17)	0.001 (0.01)	(0-0.11)
Firm is a Subsidiary of a Business Group Owned by the Suharto Family	0.005 (0.07)	(0-1)	0.007 (0.08)	(0-1)	0.012 (0.110)	(0-1)
A Suharto Family Member is in the Board of Management (BOM) of the Firm	0.004 (0.06)	(0-1)	0 (0.07)	(0-1)	0.01 (0.1)	(0-1)
Firm is a Subsidiary of a Business Group Owned by Suharto's "Blood Relatives" (excluding relations by marriage)	0.003 (0.06)	(0-1)	0.004 (0.06)	(0-1)	0.01 (0.09)	(0-1)
Degree of Firm's Political Connection (0=not connected; 1=weak crony; 2=strong crony; 3=Suharto family in BOM; 4=Suharto family; 5=Suharto blood relatives)	0.035 (0.35)	(0-5)	0.047 (0.4)	(0-5)	0.101 (0.57)	(0-5)
OTHER CONTROLS						
Value of Firm Production in 1000 Rupiah (logged)	13.66 (2.10)	(7.22-22.71)	14.11 (2.12)	(7.22-22.71)	14.60 (2.28)	(8.27-22.05)
Profits: Revenue minus Expenditures (in trillion Rupiah)	0.005 (0.053)	(0-5.18)	0.01 (0.072)	(0-5.18)	0.01 (0.08)	(0-2.19)
Productivity: Total Factor Productivity (logged)	2.82 (1.32)	(-3.39-9.51)	2.610 (1.25)	(-2.42-9.51)	2.59 (1.35)	(-0.58-7.01)
Profitability: Profits divided by Fixed Assets in 000 Rupiah	0.003 (0.06)	(0-7.06)	0.002 (0.03)	(0-1.68)	0.005 (0.05)	(0-1.36)
Fraction of Production that is Exported	0.10 (0.28)	(0-1)	0.10 (0.28)	(0-1)	0.08 (0.24)	(0-1)
Central Government Ownership Share of Firm	0.02 (0.14)	(0-1)	0.01 (0.12)	(0-1)	0.05 (0.22)	(0-1)
Foreign Private Ownership Share of Firm	0.05 (0.19)	(0-1)	0.07 (0.22)	(0-1)	0.07 (0.23)	(0-1)
Firm Age/1000 Years	0.01 (0.01)	(0-0.1)	0.01 (0.02)	(0-0.1)	0.02 (0.02)	(0-0.1)

Table 2. Summary Statistics (continued)

Panel B: Firm Level Data				
Sample: Firms in Industries which have at least 1 Licensed Firm				
Variables	Firm Granted an Import License (Indicator) = 0 (9259 obs.)		Firm Granted an Import License (Indicator) = 1 (337 obs.)	
	Mean (Std. Dev.)	Range	Mean (Std. Dev.)	Range
POLITICAL CONNECTION				
Firm is Politically Connected based on stock market regressions (Indicator)	0.011 (0.106)	(0-1)	0.160*** (0.367)	(0-1)
Degree of Firm's Political Connection ("Suharto ill" coef. in stock market regs)	0.0005 (0.006)	(0-0.17)	0.007*** (0.022)	(0-0.17)
Firm is a Subsidiary of a Business Group Owned by the Suharto Family	0.004 (0.064)	(0-1)	0.077*** (0.267)	(0-1)
A Suharto Family Member is in the Board of Management (BOM) of the Firm	0.0036 (0.06)	(0-1)	0.033*** (0.178)	(0-1)
Firm is a Subsidiary of a Business Group Owned by Suharto's "Blood Relatives" (excluding relations by marriage)	0.003 (0.056)	(0-1)	0.030*** (0.17)	(0-1)
Degree of Firm's Political Connection (0=not connected; 1=weak crony; 2=strong crony; 3=Suharto family in BOM; 4=Suharto family; 5=Suharto blood relatives)	0.033 (0.332)	(0-5)	0.448*** (1.133)	(0-5)
OTHER CONTROLS				
Value of Firm Production in 1000 Rupiah (logged)	14.00 (2.053)	(7.22-22.39)	17.04*** (1.824)	(11.1-22.7)
Profits: Revenue minus Expenditures (in trillion Rupiah)	0.005 (0.042)	(0-2.13)	0.052*** (0.312)	(0-5.18)
Productivity: Total Factor Productivity (logged)	2.590 (1.218)	(-2.42-9.51)	3.09*** (1.838)	(-0.22-8.03)
Profitability: Profits divided by Fixed Assets in 000 Rupiah	0.002 (0.029)	(0-1.68)	0.005** (0.022)	(0-0.3)
Fraction of Production that is Exported	0.103 (0.276)	(0-1)	0.135** (0.283)	(0-1)
Central Government Ownership Share of Firm	0.014 (0.117)	(0-1)	0.017 (0.125)	(0-1)
Foreign Private Ownership Share of Firm	0.060 (0.213)	(0-1)	0.230*** (0.354)	(0-1)
Firm Age/1000 Years	0.015 (0.016)	(0-0.1)	0.015 (0.014)	(0-0.08)

Panel C: Industry Level Data				
Variables	All Industries (302 obs.)		Industries with a Connected Firm (99 obs.)	Industries without a Connected Firm (203 obs.)
	Mean (Std. Dev.)	Range	Mean (Std. Dev.)	Mean (Std. Dev.)
Industry has at least one connected firms, identified from the stock market regs (Indicator)	0.328 (0.47)	(0-1)		
Industry has at least one connected firms, identified from Suharto family businesses (Indicator)	0.209 (0.407)	(0-1)	0.444*** (0.499)	0.094 (0.292)
Industry has Association (Indicator)	0.291 (0.455)	(0-1)	0.414*** (0.495)	0.232 (0.423)
Average Nominal Tariff Rates (%)[a]	0.135 (0.164)	(0-1.46)	0.129 (0.172)	0.138 (0.161)
Coverage Ratio of Non-Tariff Barriers[b]	0.037 (0.16)	(0-1)	0.060 (0.193)	0.025 (0.138)

Standard deviation in parentheses; * significant at 10%; ** significant at 5%; *** significant at 1%

[a] Tariffs only have 264 observations.

[b] CR-NTB only have 278 observations.

Table 3. Impacts of Licensing and Political Connections

Categories	Obs.	Year	Log of Production			Total Profits (in billion Rp)			Log of Productivity			Profitability		
			Level	Diff.	Difference in Difference	Level	Diff.	Difference in Difference	Level	Diff.	Difference in Difference	Level	Diff.	Difference in Difference
Licensed	81	1990	15.27 (0.97)	1.16*** (2.23)		1.80 (1.62)	10.2*** (19.88)		2.97 (1.67)	0.29 (3.48)		1.29 (2.44)	1.01 (6.74)	
		1996	16.43 (1.36)		0.78*** (2.38)	12.00 (19.8)		9.22*** (19.8)	3.26 (1.85)		0.17 (3.53)	2.30 (5.12)		0.53 (24.8)
Unlicensed	3446	1990	13.38 (1.56)	0.38*** (3.24)		0.61 (1.19)	0.98*** (5.38)		2.59 (1.29)	0.12*** (2.62)		1.52 (5.76)	0.48*** (13.61)	
		1996	13.76 (1.69)			1.59 (4.95)			2.71 (1.33)			2.00 (8.54)		
Licensed, connected	7	1990	15.46 (1.08)	2.09*** (1.99)		1.66 (1.54)	28.24** (24.77)		3.43 (1.95)	0.59 (3.91)		0.67 (0.48)	5.66 (8.64)	
		1996	17.55 (1.07)		1.02 (2.18)	29.90 (26.6)		19.74* (24.75)	4.02 (2.32)		0.32 (4.02)	6.33 (9.29)		5.09 (8.63)
Licensed, unconnected	74	1990	15.25 (0.96)	1.07*** (2.22)		1.81 (1.64)	8.5*** (18.39)		2.92 (1.64)	0.27 (3.41)		1.34 (2.53)	0.570 (6.39)	
		1996	16.32 (1.37)			10.31 (18.3)			3.19 (1.80)			1.91 (4.46)		
Licensed, unconnected	74	1990	15.25 (0.96)	1.87*** (1.04)		1.81 (1.64)	1.20*** (1.66)		2.92 (1.64)	0.33		1.34 (2.53)	-0.32 (2.94)	
Unlicensed	3446	1990	13.38 (1.56)			0.61 (1.19)			2.59 (1.29)			1.52 (5.76)		

Standard deviation in parentheses; * significant at 10%; ** significant at 5%; *** significant at 1%

Notes:

Production is measured by value of firm production in 000 rupiah (logged).

Total profits is measured by firm revenue minus expenditures (in billion Rp).

Productivity is measured by firm total factor productivity (logged).

Profitability is measured by firm profits divided by total fixed assets.

Observation is limited only for firms in industries which have at least 1 licensed firm and the firms were in existence in both 1990 and 1996.

All are measured in average. All values in 1996 have been deflated using aggregate wholesale price indices for manufactured commodities.

Table 4. Firm Licensing Protection Regressions:
Linear Probability Model Estimation of the Likelihood that the Firm is Granted an Import License

	(1)	(2)	(3)	(4)	(5)
Sample	All Firms	Large Firms: Firms with at least 100 Workers	Firms in Industries which have at least 1 Licensed Firms	Firms in Industries which have at least 1 Licensed Firms	Firms in Industries Governed by Import Licensing
Firm is Politically Connected based on stock market regressions (Indicator)	**0.154*****	**0.128*****	**0.214*****	**0.263*****	**0.129*****
	(6.00)	(4.81)	(6.05)	(7.30)	(2.74)
Value of Firm Production in 1000 Rupiah (logged)	0.011***	0.020***	0.020***		0.024***
	(12.44)	(8.64)	(12.77)		(6.62)
Profits: Revenue minus Expenditures (in trillion Rupiah)	0.148***	0.110**	0.135***		0.245**
	(4.21)	(2.54)	(3.42)		(2.03)
Productivity: Total Factor Productivity (logged)	0.001	-0.002	0.004		-0.023*
	(0.43)	(0.25)	(0.72)		(1.66)
Profitability: Profits divided by Fixed Assets in 000 Rupiah	-0.012*	-0.012*	-0.028		-0.018
	(1.78)	(1.67)	(0.54)		(0.22)
Fraction of Production that is Exported	-0.011***	-0.010	-0.019**		-0.007
	(3.01)	(1.49)	(2.19)		(0.33)
Central Government Ownership Share of Firm	-0.022***	-0.030***	-0.047**		-0.060**
	(3.08)	(3.30)	(2.57)		(2.25)
Foreign Private Ownership Share of Firm	0.041***	0.025**	0.067***		0.063*
	(4.44)	(2.22)	(4.20)		(1.87)
Firm Age/1000 Years	0.081	0.232	0.208*		0.512
	(1.38)	(1.36)	(1.87)		(1.56)
Constant	-0.181***	-0.377***	0.330***	0.659***	0.220
	(10.55)	(7.43)	(5.47)	(12.18)	(1.63)
Industry Fixed Effects?	Yes	Yes	Yes	Yes	Yes
Province Fixed Effects?	Yes	Yes	Yes	Yes	Yes
Observations	20900	6340	9596	9596	1868
R-squared	0.15	0.24	0.17	0.11	0.24

Robust t statistics in parentheses; * significant at 10%; ** significant at 5%; *** significant at 1%

Table 5. Firm Licensing Protection Regressions:
Different Definitions of Political Connections and Licensing

	A	B	C	D	E
	Firms Granted an Import License (Indicator)	Firms Granted an IP License (Indicator)	Degree of Licensing Protection (Max 1/n*100)	Degree of Licensing Protection (Sum 1/n*100)	Total Number of License Held per Firm
Estimation Method	Probit[a]		OLS		Poisson
CONNECTIONS INDICATORS BASED ON STOCK MARKET REGRESSIONS					
(6) Indicator that Firm is Politically Connected	0.057***	0.052***	1.386**	2.280***	0.042***
	(5.30)	(5.09)	(2.22)	(2.76)	(3.53)
(7) Coefficient on Degree of Connection[b]	0.004***	0.004***	12.578*	20.310**	0.007***
	(5.34)	(5.04)	(1.74)	(2.18)	(3.72)
CONNECTIONS INDICATORS BASED ON SUHARTO FAMILY BUSINESSES					
(8) A Suharto Family Member is in the Board of Management (BOM) of the Firm (indicator)	0.094***	0.091***	1.111**	2.107**	0.048***
	(4.80)	(5.04)	(2.16)	(2.24)	(3.13)
(9) Firm is a Subsidiary of a Business Group Owned by any member of Suharto's family (indicator)	0.042**	0.046**	0.184	0.874	0.029
	(2.16)	(2.39)	(0.29)	(0.69)	(1.38)
(10) Firm is a Subsidiary of a Business Group Owned by Suharto's "blood" relatives - i.e. excluding those who have married in to the Suharto family (indicator)	0.055***	0.059***	0.330	1.141	0.032
	(2.39)	(2.62)	(0.46)	(0.81)	(1.41)
(11) Degree of Connection (0=not connected; 1=weak crony; 2=strong crony; 3=Suharto Family in the BOM; 4=Suharto Family Firms and 5=Suharto Blood Relatives Firms[c]	0.076***	0.070***	0.290**	0.590**	0.047**
	(4.81)	(4.75)	(2.20)	(2.47)	(2.24)
(12) Two Measures of Connectedness Controlled for Simultaneously					
(a) Firm is Owned and Managed by Suharto Family (indicator)	0.065***	0.070***	0.027***	0.027***	0.028*
	(3.84)	(4.16)	(3.84)	(3.84)	(1.87)
(b) Firm is Connected based on Stock Market Regressions but does not belong to Suharto Family (Indicator)	0.042***	0.037***	0.015***	0.015***	0.034***
	(4.20)	(3.89)	(4.20)	(4.20)	(2.68)
Observations	9383	9380	9596	9596	9596

Robust t statistics (robust z statistics for Probit and Poisson) in parentheses; * significant at 10%; ** significant at 5%; ***significant at 1%

Notes:

All regressions control for industry fixed effects, province fixed effects and other firm-level control variables shown in specification (3) using a sample of firms in the industries with at least one licensed firm.

[a]In probit estimation, marginal effects reported instead of regression coefficients. The average marginal effect measures the change in the probability that the firm is granted an import license, in response to a discrete 0 to 1 change in the binary variable.

In Poisson estimation, the average marginal effect measures the increase in the number of licenses granted to the firm in response to a discrete 0 to 1 change in the binary variable.

[b]Degree of Political Connection is the coefficient of "Suharto's bad health day" in Jakarta Stock Exchange regression. Elasticities reported instead of regression coefficient. Elasticity measures percentage change in the probability that the firm is granted an import license, in response to 10 percent increase in the (continuous) degree of firm's
[c]The average marginal effect measures the change in the probability that the firm is granted an import license, in response to a discrete 1 point change higher in the category variable.

Figure 1. The Marginal Effect of Political Connections Across Percentiles of Firm Production, Profits, Productivity and Profitability
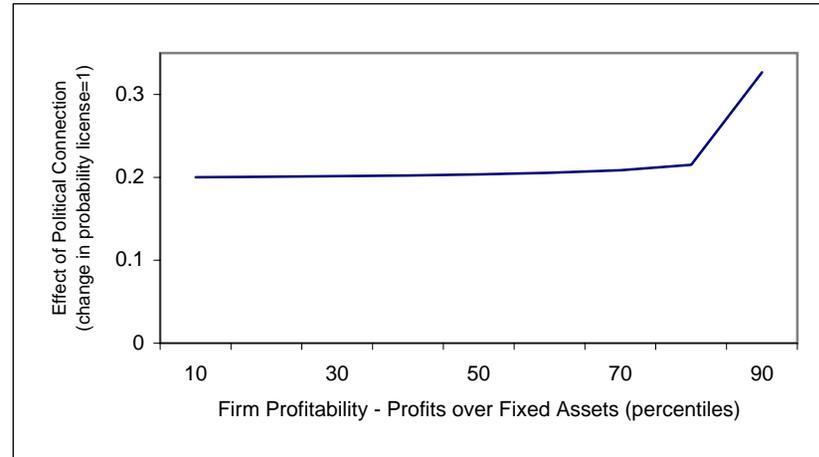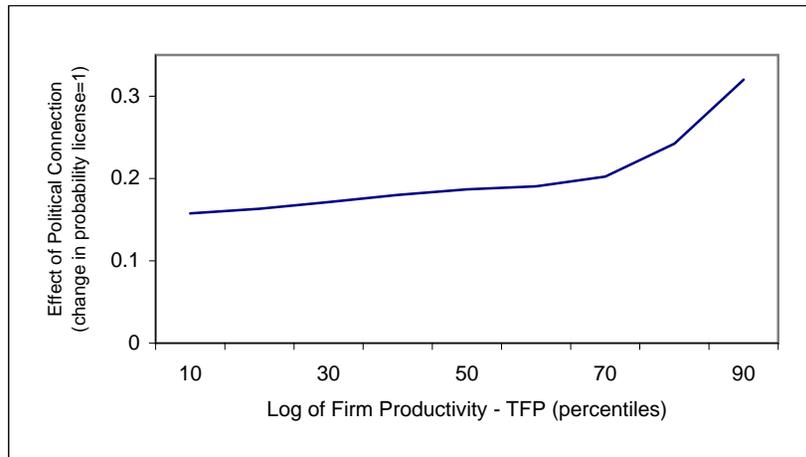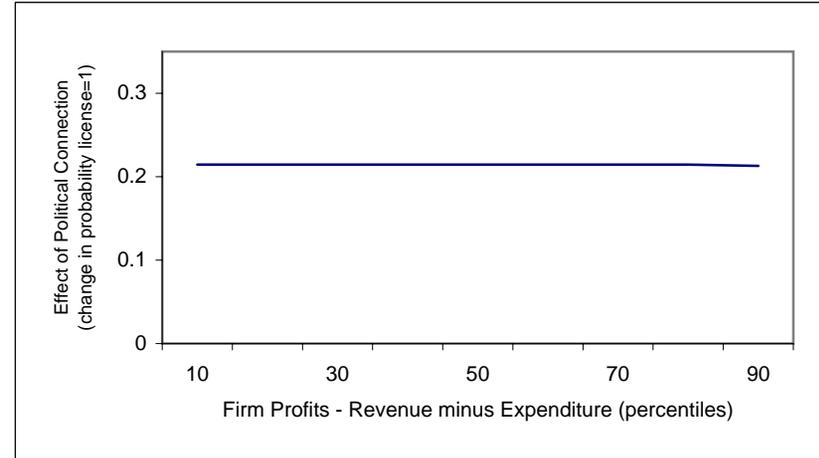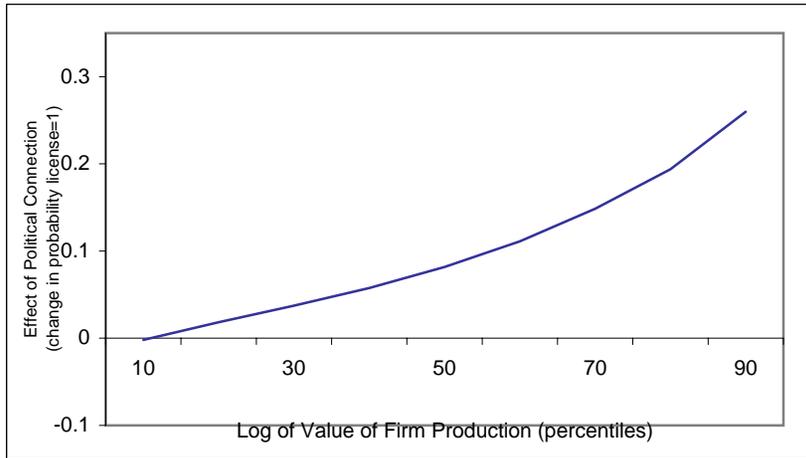
Table 6. Industry-Level Regressions of Trade Protection:
Tariffs and Coverage Ratio for Non-Tariffs Barriers

	(16)	(17)	(18)	(19)	(20)	(21)
Dependent Variable	Tariffs/(1+Tariffs)			CRNTB/(1+CRNTB)		
Estimation Method	Ordinary Least Squares			Tobit		
	Coeff.	Coeff.	Coeff.	Marg. Effect	Marg. Effect	Marg. Effect
Inverse of Import Penetration Ratio divided by Import	-0.000001	-0.000001	-0.000001	-0.005	-0.010	-0.005
Demand Elasticity/1000 (z/e)	(0.23)	(0.40)	(0.39)	(0.92)	(0.79)	-0.43
Interaction: Connected Indicator*z/e, where Connectedness is	-0.001***			-0.012		
defined from JSX Regressions	(5.50)			(1.34)		
Interaction: Connected Indicator*z/e, where Connectedness is		-0.0002			-0.002	
defined from Suharto Family		(0.56)			(0.13)	
Interaction: Connected Indicator*z/e, where Connectedness is			-0.0002			-0.009
defined from Industry Associations			(0.58)			-0.64
Textiles	0.020	0.020	0.020	-0.427*	-0.437*	-0.430*
	(1.14)	(1.11)	(1.12)	(2.06)	(2.04)	-2.04
Wood	0.003	0.005	0.005	-2.20**	-2.30**	-2.35**
	(0.15)	(0.23)	(0.20)	(7.03)	(6.36)	-7.56
Paper	-0.046***	-0.046***	-0.046***	-2.11**	-2.11**	-2.11**
	(2.77)	(2.79)	(2.78)	(7.16)	(7.21)	-7.18
Chemicals	-0.020	-0.017	-0.017	-0.187	-0.193	-0.19
	(1.18)	(1.01)	(1.01)	(1.29)	(1.34)	-1.32
Non-metalic Minerals	-0.034*	-0.034*	-0.034*	-2.43**	-2.69**	-2.42**
	(1.81)	(1.81)	(1.81)	(5.07)	(2.65)	-4.49
Metal and Basic Metal	-0.060***	-0.060***	-0.060***	0.021	0.015	0.018
	(3.49)	(3.48)	(3.48)	(0.12)	(0.09)	-0.1
Metal Products	-0.006	-0.007	-0.007	-0.188	-0.194	-0.192
	(0.29)	(0.31)	(0.31)	(1.44)	(1.50)	-1.49
Others	0.021	0.024	0.024	-0.220	-0.235	-0.233
	(1.11)	(1.20)	(1.20)	(0.94)	(1.01)	-1
Constant	0.119***	0.118***	0.118***	-0.321**	-0.314**	-0.318**
	(8.42)	(8.41)	(8.41)	(3.26)	(3.23)	-3.27
Observations	205	205	205	227	227	227
R-squared	0.08	0.06	0.06	0.08	0.08	0.08

Robust t statistics (z statistics for tobit) in parentheses, * significant at 10%; ** significant at 5%; *** significant at 1%

Table 7. Cost of Licensing:
Concentration Ratio and Firm Market Share

Categories	Obs.	Year	Market Share of 4-Largest Firms in the Industry		
			Level	Diff.	Diff. in Diff
Licensed Industries	100	1990	0.57 (0.26)	0.11** (0.43)	
	104	1997	0.65 (0.25)		0.05 (0.93)
Unlicensed Industries	172	1990	0.62 (0.27)	0.06** (0.58)	
	198	1997	0.73 (0.26)		

Panel A: Market Concentration

Standard deviation in parentheses; * significant at 10%; ** significant at 5%; *** significant at 1%

Panel B
Correlation between Output per Worker and Firm Market Share

	Obs.	1990	1997
Firms in Industries subject to Licensing	3570	0.410	0.246
Firms in Industries not subject to Licensing	4037	0.232	0.288

Notes:
Firms were in existence both in 1990 and in 1997

Figure 2. The Correlation between Firm Market Share and Total Factor Productivity
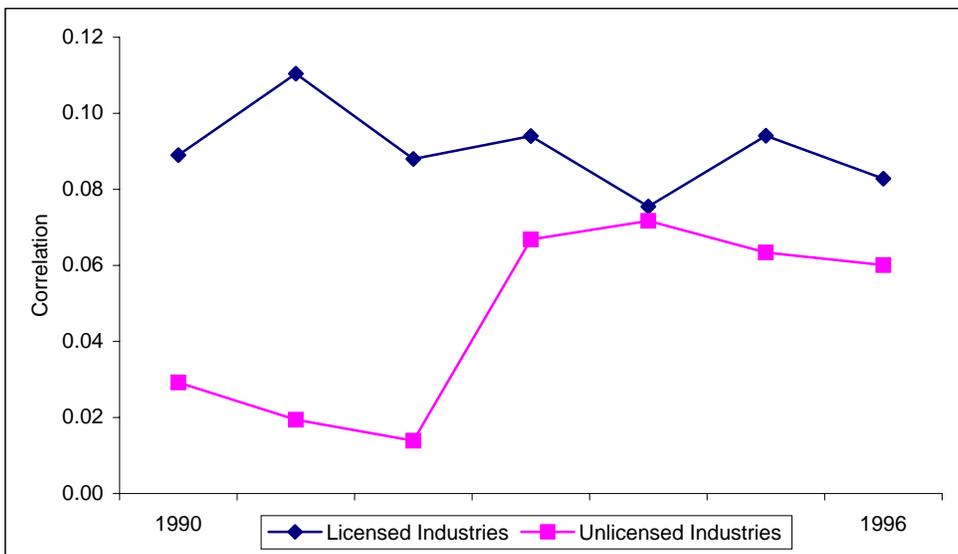
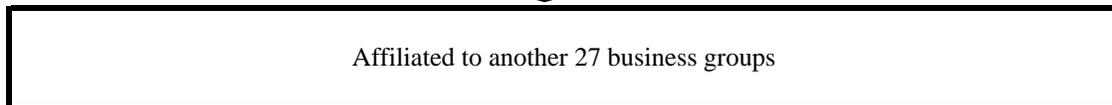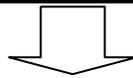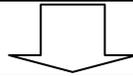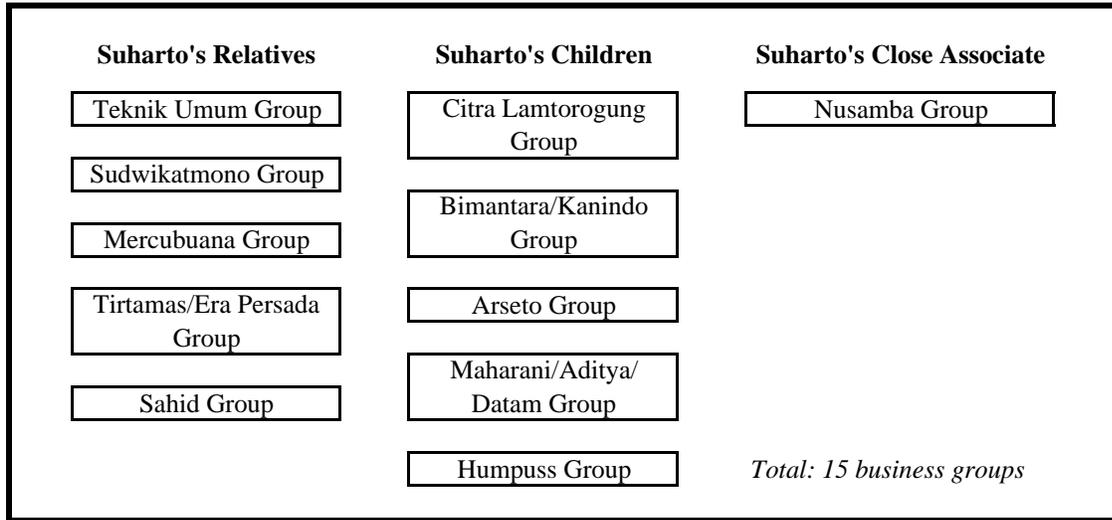**Appendix A1. Pyramidal Structure of Suharto's Family Business Groups**

Suharto's Relatives	Suharto's Children	Suharto's Close Associate
Teknik Umum Group	Citra Lamtorogung Group	Nusamba Group
Sudwikatmono Group	Bimantara/Kanindo Group	
Mercubuana Group	Arseto Group	
Tirtamas/Era Persada Group	Maharani/Aditya/ Datam Group	
Sahid Group	Humpuss Group	*Total: 15 business groups*

Other Business Groups *Directly* **Affiliated With Suharto's Family Business Groups**

Argo Manunggal Group	Jangkar Jati Group	Salim Group
Ariobimo Group	Kalla Group	Setdco Group
Artha Graha Group	Kedaung Group	Sinar Mas Group
Astra Group	Metropolitan Group	Steady Safe Group
Bakrie Group	Mulia Group	Subentra Group
Barito Pacific Group	Napan Group	Suryaraya Group
Dipo Motor Group	Ometraco Group	Timsco Group
Djajanti Group	Paleko Group	Tri Patra Group
Dwi Golden Graha Group	Panggung Group	Wigo Group
Gadjah Tunggal Group	Pasopati Group	Wijaya Kusuma Jaya Group
Gema Group	Raja Garuda Mas Group	Wijaya Wisesa Group
Gudang Garam Group	Rajawali Group	*Total: 35 business groups*

Affiliated to another 27 business groups

Source: Castle's Roadmap to Indonesian Business Groups (1997)

Appendix A2. Effect of Suharto's Bad Health Days on Bimantara's Returns:
Ordinary Least Squares Estimations

Dependent Variable	(1) Daily Stock Price Return	(2) The Deviation of Firm Return from the Average	(3) The Deviation of Actual Firm Return from the Predicted
Indicator for Days when the News about Suharto's Bad Health was reported by the press	-0.020***	-0.020***	-0.020***
	(3.15)	(3.15)	(3.15)
Jakarta Stock Exchange (Market) Return	0.790***	0.790***	-1.005***
	(7.74)	(7.74)	(9.85)
Average Return for the Sub-industry Category in which the Firm belongs	0.846***	0.846***	0.846***
	(15.19)	(15.19)	(15.19)
Change in Rupiah/USD Exchange Rates from Previous Date	0.058	0.058	0.058
	(0.71)	(0.71)	(0.71)
Interest Rate set by Bank Indonesia for 30-days period	-0.0002	-0.0002	-0.0002
	(0.64)	(0.64)	(0.64)
Constant	0.003	0.004	0.003
	(0.67)	(0.69)	(0.60)
Observations	573	573	573
R-squared	0.60	0.60	0.31

Absolute value of t statistics in parentheses

* significant at 10%; ** significant at 5%; *** significant at 1%

[a]Predicted value is the fitted value of daily firm returns regression on market returns.