Does bribery work? Evidence from Monitoring Investment Climate Survey in Indonesia

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Abstract

This paper provides empirical analysis of corruption behavior from government officials in Indonesia, a country that according to Transparency International is classified among other bottom rank countries in Corruption Perception Index (CPI). Testing the 'grease hypothesis' that argued corruption actually has a positive effect to growth under certain level of rules and regulation imposed by the government, this paper utilizes Monitoring Investment Climate survey data from the World Bank, covered 600 large manufacture firms containing information of doing business in Indonesia. Consistent with chronic and persistence case of grease hypothesis, the econometric analysis show that amount of bribes has positive association with the time spent with officials regarding business licenses. Extending the analysis, this paper comes up with 'relative grease hypothesis' hypothesis, which is: under chronic and persistent setting all firms is willing to bribe due to competitiveness reason that consequently raise officials bargaining power more than the average normal bribes. This paper shows that corruption in Indonesia has been a chronic and persistent case despite decentralization era that fails to reduce transaction cost and made business climate in Indonesia less predictable.

Keywords: corruption, grease hypothesis, bureaucracy rent

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I.   Introduction

Indonesia is a country with long issue of corruption. On CPI report, Indonesia often placed in the bottom ranks among other least developed countries. In 2010 Indonesia was rank number 110, along with Benin, Bolivia, Gabon, Kosovo, and Solomon Islands. Though Suharto regime had fall after economic crisis in 1997, followed by decentralization in 1999, Indonesia still cope with a persistent case of corruption. The government not only decentralized its administrative structure through local autonomy, but also along with its corruption structure. Bardhan and Mokherjee (1999) theoretically evaluate the hypothesis that decentralizing government system are more prone to local capture and less accountable.

The corrupt regime has often being associated with Suharto regime, which also include collusion and nepotism practice. After the regime collapsed in 1997, the political instability has caused investment unpredictable and trigger massive capital outflow. Among other fellow neighbor country in South Asia affected by the crisis, Indonesia performed the slowest improvement of its economic indicator. Initiate by high inequality of income, based on Law 22/1999 the government decentralize its system by giving more power to local government to govern and manage its local finance. However, by decentralizing its administrative structure, the incidence of bribery was increasing as well (Basri, 2004). As more authority means that local government should make the effort to increase the local revenue, many studies showed that the number of documents and license needed was increasing, lengthen the bureaucracy chain, and also raise the number of officials needs to be bribed.

Patunru and Wardhani (2008) explain that local governments and local parliament representatives have strong motive to issued local regulations leading to increase the amount and numbers of local tax, and charges in order to increase local revenue. As regional autonomy regulates fiscal decentralization, it is stated that region with lower endowment of natural resources will have less transfer from the central government and therefore should rely more on its local revenue. Moreover, local revenue is mostly used to finance operational cost and local official's salary, including member of local parliament representatives. Therefore, the incentive to issue more local regulations after decentralization era is higher. This situation has enforced firms to experience a tough business, as they have spend more time with more officials and also higher payment for levies imposed. In order to reduce the pressure from the tight harassment, firms are more likely to pay more than the legal price-in any form, as long as they can run the business smoothly.

The level of corruption is determined by several important factors. Lack of government institution, lower benefit received by government officials, and government system adopted are amongst the causal factors. Different with developed countries, in the third world countries institutions are far from efficient, cumbersome, and tied with uncertain politics situation, and thus the incidence of corruption are more likely to happen. Corruption affects economic growth by distort market competition and deter investment.

Most cited empirical study on corruption by Mauro (1995) shows negative association between corruption and growth through investment channel. Though far earlier paper by Leff (1964), revealed that corruption might improve efficiency especially under certain level of regulation.

The empirical study of corruption is limited that mainly due to data availability. Cross country studies frequently use Corruption Perception Index (CPI) published annually by Transparency International (TI). The index ranks countries based on respondent's perception, which represents investors' assessment of business climate in the respective country. However as corruption assessment is not comparable due to different standard and definition of corruption, the urge for empirical micro studies is urgently needed.

This study is aimed to fill the empirical gap by using micro data of corruption hindered business climate in Indonesia, by identifying the probability of bribes incidence conducted by firms in order to cut the long chain of bureaucracy. The empirical work will test the grease hypotheses for the case of Indonesia by estimating time needed to get license and associate with the amount of bribery. Negative association would mean that the grease hypothesis holds, while positive association is interpreted as chronic and persistence case of corruption. The higher bribery amount will be associated with longer period of time needed to get the license done.

Using competitive argument, in a persistent case all firms is more likely to bribe rather than being inferior. This setting may increase officials bargaining power and push firms to pay more than the normal or average amount of bribes, or in other words its willingness to pay. This paper will show that the even using the competitive argument, the corruption in Indonesia has been chronic and persistent. The official's behavior of officials has been up until hindering and harassing level for firms. I find that officials visit to firms is not random, driving by several factors.

This paper exploit information obtained from micro level data of firm's direct experience with corruption. Using survey data conducted by World Bank and Institute for Economic and Social Research, Faculty of Economics, University of Indonesia (LPEM-FEUI) as part of Monitoring Investment Climate series in 2005-2006, I estimate the grease hypothesis model.

The survey contains specific information of 600 large manufacture firms in 7 largest city in Indonesia, whose frequently consort with officials regarding bureaucracy arrangement for several administration procedure concerning labor regulation, business licenses and permits, merchandise clearance through customs, infrastructure, delays in VAT refunds, bribes, bureaucratic harassment, etc that 'forced' firms to make illegal payments. As the questionnaire was asking on sensitive issue, the survey was accompanied with an official letter from Coordinating Ministry for the Economy to guarantee the confidentiality.

This paper is organized as follows. In the next part, literature reviews on the behavior of corruption, particularly bribery between firms and officials will be discussed. Part three discusses on how the corruption in Indonesia is, showing descriptive analysis on how corruption has impede economic indicator in Indonesia. In part four, this study will explain the model specification, data, and methodology used. It also will show thus analyze the result. The last part will be the conclusion.

II. Literature Review: Corruption, Growth, and Firms

In recent years, there has been considerable debate on the effect of corruption to economic growth that had motivated many studies. One hypothesis underlying the analysis is called efficient grease hypothesis. Firstly introduced by Leff (1964), this hypothesis argues that

corruption can grease economy, particularly under certain level of rules and regulation (red tape) imposed by government. It perceived that corruption might be beneficial under inefficient bureaucracy. This hypothesis has been tested using different method and data set. Meon and Weill (2005) tests whether corruption can be viewed as the grease of economy using panel data of 62 countries. They find that corruption might grease the economy in the country where the institution is ineffective.

On the other hand, earlier study by Mauro (1995), didn't find any evidence that corruption can be seen as grease of the economy. He studied the channel on how corruption affects economic growth. He tries to find this corruption effects by using corruption-ranking data of 68 countries during 1980-1983. In order to avoid endogeneity problem, he use 2SLS method in estimating the affect of corruption to investment and growth. As the instrument variable, he use ELF index, Ethnolinguistic Fractionalization. This index is constructed to provide an ethnolinguistic composition of world population, mainly based on the criteria of historical linguistic origin. Thus, ELF measures the fragmentation of population within a country. Therefore, the more fragmented a country, the higher ELF index would be.

In the regression results, Mauro found a negative correlation between corruption and investment and growth. To check the robustness, he controls some other determinants that could affect investment and growth, such as population growth, education, government expenditure, initial GDP, etc. The intuition is quite clear. Corruption can decrease incentives and opportunities to invest, thereby lowering economic growth.

The main problem in this research is whether ELF is a strong and valid instruments variable for the corruption in growth and investment regression. He indeed explains that there is quite evidence that the ELF is strongly correlated with the corruption index in one country but at the same time we could also suspect that there is a correlation between the ELF to investment also to growth. The more heterogenic a society, the more fragile the social cohesion in that country, thus the dispute between ethnic groups will be or more likely to occurs. These ethnic problems will affect the investment decision and economic growth. Since there would be a correlation between the ELF and Investment and Growth, the ELF could not be seen as a strong and convincing instrument variable. Therefore, the 2SLS regressions using ELF as instrument variable econometrically could lead into inconsistent parameter, thus misleading conclusion.

The study by Mauro (1995) was confirmed by Kaufman and Wei (2000), who find that firms who pay more in bribes are also likely to spend more, not less, management time with bureaucrats for negotiating regulations. In testing this hypothesis, they propose an empirical model, by using management time wasted with government officials as the dependent variable, and prevalence of bribes as the main explanatory variables. Further study by Henderson, J.V. and A. Kuncoro (2004) also found a positive correlation between time spend with government officials and amount of bribery, using data set of 1808 firms in 64 local government areas.

In discussing about corruption, it may worth to also discuss about government system of a country, especially in a developing country can determine the level of corruption. There are two government systems, centralized and decentralized system. In a centralized country, local government had autonomy over limited minor sector, while main sector were arrange by central government. In contrast, in decentralized system local government has the authority to provide and regulate not only minor sector, but also main sector such as to provide public services in schooling, health care, etc.

In decentralization system, the size of government institution becomes larger as many local institutions required in running many functions. In financing those activities, (paying competitive salary for local officials, maintain public services, etc) local government has two main revenue sources, local revenue (local tax and retribution), and also tax re-transfer from central government. The amount of transfer to local government depend on the system adopt and the characteristics of the region. In region where it supplies higher revenue to central government, then it will get higher fraction of national income. This income would be used to maintain public services and also to pay salary of local government officials.

Local government who perceived that the revenue received is insufficient to finance local government expenditure will seek alternatives revenue. One way to do this is by create new regulation (new license needed) and charging more for public services from their "clients", especially firms. Local government will tend to increase all potential revenues they can get, since now local government have authority to manage their own local revenues. This new regulations will create direct revenue and indirect revenue. Direct revenue increase, as those regulations was imposed to increase government revenue, by charging taxes and levies for public services. Indirect revenue appears as huge regulations will burden firms, so it is better for firms to pay bribes to local officials. This revenue didn't go to local government revenue, but goes to local government officials' pocket.

Shleifer and Vishny (1993) illustrate an analysis of higher corruption in decentralized system than centralized one. They compare government as an independent monopolist (where different government official issue complementary type of license independently) and government as a joint monopolist (where more than one government agencies issue a complementary type of license jointly)

In decentralized system, central government not only decentralized tax transfer, but also decentralized law and regulation. The transition from centralized to decentralized system may lead to higher new regulations create by local government. But in general, the average amount of those regulations in one country might not change, since new regulations imposed by local government also followed by the cancellation of some regulations from central government which is not relevant after decentralized system takes places. Evidence from Indonesia showed that after decentralization takes place, local government issued hundred of local regulations concerning taxes, levies and other fees. In addition, regional governments also create various policies to regulate business activity. Moreover, all various local regulations and rules created by the government will end in a high cost economy, which impeded economic development. This in turn will cause a negative effect on the business climate. By having more regulation and rules, firms are enforced to face a higher cost, since they have to pay more for the levies imposed, and also have to spend more time in dealing with government. To reduce the impact of huge regulation imposed, firms are more likely to pay more than the formal price. It is expected that by paying more bribes would reduced the time spent in dealing with government. This hypothesis is parallel with efficient grease hypothesis, where more bribes will reduce time wasted by firms in dealing with local officials.

Henderson and Kuncoro (2004) argue that bribes and management time spent in dealing with government officials has complementary relationship. Firms paying more bribes to speed up the *activity*, but they still have to experience time with local officials to maintain good relationship with government officials. Svenson (2002) finds that senior management in firms reporting bribes; spend more time dealing with officials.

The evidence from studies above maybe inconsistent since firms are paying bribes to reduce time spent with government officials to deal with regulations. One thing that may cause this ambiguity is omitted variable problem. It is possible that large firm with higher profit more likely to have a lot of supervision from government officials. In that case, these firms indeed will spend more time with government officials, and also higher bribes to smoothing the regulations imposed.

In poor countries, factor that will lead to higher corruption is lower benefit received by government officials. Lower level of GDP caused lower level of its fraction to give sufficient benefit needed by government officials. Since government officials perceived that the benefit they get is not enough, they will try to seek alternative revenue, which is asking for bribery, or charging additional payment in services they deliver for personal gain. Government official will try to maximize their revenue by asking for bribes subject to getting caught and punished for their action.

In a decentralized system, the benefit received by local officials depends on transfer from central government. For example, in Indonesia, where decentralization system adopted in 2001, the basic salary received by local officials is the same for the same level position in every region, but it differs in additional salary (for example family support, health support, housing support, etc). The amount of this additional salary depends on the amount of local government income, the higher local government income, the higher its fraction to give additional salary to its local government officials. Therefore, it can be said that since transfer from central government is insufficient to pay enough salary, then corruption is more likely to happen in region where the transfer is lower. This hypothesis proposed by Henderson, J.V. and A. Kuncoro (2004). They argue that regions with higher transfer from central government will have lower level of corruption. Using 1808 firms in 64 regions in Indonesia as their sample, the paper estimates a large reduction in regulation in better-funded localities. They find that an increase of tax transfer variable decreases the number of licenses, which will lead to lower bribes demanded.

The critical issue of the methodology used by Henderson and Kuncoro, is randomness of transfer assignment among regions. Random assignment ensures the independency of treatment and potential outcomes. Since the amount of transfer is not random, which depend on the regions characteristics (richer regions will have higher transfer) then treatment evaluation method may lead the analysis into an inconsistent and bias parameter. Then the evidence proposed by Henderson and Kuncoro is arguable.

Discussing about corruption and firms behavior, we may see that level of corruption would become more persistence as it appears as the result of demand and supply between firms and government officials. Study by Shleifer and Vishny (1993) illustrates an analysis which show that corruption spreads because of competition between the firms. The model describe government as monopolist in supply public services (issue license and permits) needed by business, and have monopoly power to restrict the quantity of good that he supplies (in a sense he can deny an application for a specific permit or license). Furthermore, the government officials have no cost in providing those services, as the cost is burden to the government.

Simon Johnson, John McMillan and Christopher Woodruff (1999) find that firms is tend to hide their revenue, as one way to avoid predatory behavior of government officials in asking bribes. They proposed four hypotheses. First, firm hide their revenues when taxes imposed by government are high. Second, firms hide as the consequences of predatory behavior of government, especially in seeking bribes. The last two reasons is because they

hide from threat of criminals, and bad institutional environments that makes uncertainty for firms to operate high (such as certainty of contracts, legal institutions, etc).

Using data of 1471 surveyed manufactured firms in Poland, Romania, Russia, Slovakia, and Ukraine, they found a negative relationship between underreporting of sales and the bribes paid to corrupt officials. There is no association shows in the regression between underreporting with protection payments to mafia, tax payments, or the perceived workability of the courts. The regression shows that avoiding official corruption is an important incentive for unofficial activity. Firms hide their output to evade bribes.

They also show that firms reporting higher profits hide more of their activity. Since tax payments are based at least in part on profits, the finding on profits may reflects the effect of official tax payments. But more profitable firms may also force to pay larger bribes. Then, again, it can be seen as additional incentives for profitable firms to hide their revenue.

Moreover, they argue that operating in hidden economy is not without consequences. Firms that operate in hidden economy will have probability to getting caught by authorities, for example if there is a detection of tax evasion. Therefore, firms can not used public sector facility, such as borrowing from banks and use court institution to get a contract.

How firms behave under corrupt economy also depend on firms characteristics. Studies by Svenson (2002) develop a bargaining model between firms and corrupt officials. He tries to examine the incidence of bribes and the level of grafts in dealing with corrupt economy, using quantitative data set from Uganda Industrial Census in five general industry categories. They argue that firms located in the same region will face a same regulation and rules; but those firms are different in profitability and technology. These characteristics determine firm's ability in paying bribes, and also their ability to avoid bribes.

The model proposed explained that public officials will maximize their expected profit subject to that firm might exit region if bribes demanded too high and public officials might get caught and punished. Consequences of this model are, corruption activity will discourage firms investment in corrupt region, and shifts their production to less corrupt region.

Svenson (2002) comes with different result with Johnson, et al (1999). By using probit method, they found no evidence that firms with higher profit tend to have higher probability of \paying bribes. They found that small firms under over control of officials, still, have to pay bribes. Moreover, firms receiving public services engage in trade, and firms paying more type of tax face a higher probability of paying bribes.

How much the bribe does should be paid? Findings on the amount of bribes paid are different between relevance studies, since the studies are using different micro level data and method. Studies by Svenson (2002) found that the amount of bribes depends positively with the ability of firms to pay, "the more a firm can pay, the more it has to pay". It can be said that civil servants spend time in learning about their "customers" and adapt their bribe requests accordingly.

He found evidence that the amount of bribes needs to pay depend positively on current and expected profits, where higher profit today or future will decrease bargain power of firms in facing corrupt officials, then will increase amount of bribes. Moreover, they also find two important findings that amount of bribes depend negatively on alternative return of

capital. So, having technology with a low sunk cost will increase firms bargaining position, so officials will demand lower bribes. The model assumed that government has perfect information about firms profit structure, which didn't happen in the reality.

In Uganda, Svenson (2002) finds that the amount that should be paid is 8% of total cost of firms, or equivalent with US$ 8.300 (average per year). In Indonesia, Henderson found that firms report additional payments that should be done in dealing with government officials is 10% of total cost and over 10% of management time to spend with government officials. Study by Henderson in Indonesia (2004 and 2005), found that the amount of bribes paid depend on how the regulation in specific region, and also depend on firms characteristics. Moreover, they found that firms with higher profit and own by Chinese face more frequent harassment and higher amount of bribes to be paid.

In the end, we may say that there is many studies about corruption have been done to examine the effect of corruption to the economy. Although several theoretical studies confirmed the efficient grease theory that argued that optimum level of corruption is positive, but the evidence from country and firm level data come with different argument. Many poor countries are known as a very corrupt with an inefficient institution. In contrast, developed countries appear to be less corrupt. In the case of decentralization, corruption would become higher as the size of government institution structure become larger. Thus, local government has the opportunity to create new regulations imposed that will lead to increase in the amount of bribes requested. Corruption it self is very costly to economic development, as relevant studies shows that corruption will affect firms' behavior, also its investment decision. In the end, even corruption could be perceived to grease economy, but still it should be reduced as it hurt the economy it self.

III. Corruption in Indonesia

Indonesia is routinely perceived to be one country that has a really serious problem in corruption. Based on Transparency International index, Indonesia's rank is always stands in the bottom, where in 2005 it was placed in ranks 137 over 145. This condition gives a huge impact on Indonesia's economic development. It is not only distort competition, discourage investment, but also can be a burden for democracy and the rule and law, thus gives negative effect in most social indicator.

After economic crisis in 1997, Indonesia decentralized its government structure by giving more authority to local government to manage its income and expenditure. This condition gives a quite significant impact for the rates of corruption, since it is not only decentralized the government structure, but also decentralize the corruption itself. Study by SMERU (2001) shows that after decentralization; local government creates hundred of regulations concerning taxes, levies and also various policies to regulate business activity. This in turn will cause a negative effect on business climate, where having more regulation and rules makes firms are enforced to face a higher cost. Firms have to pay more for the

levies imposed, and also have to spend more time in dealing with government. In order to reduce the impact of huge regulation imposed, firms are more likely to pay more than the formal price. It is expected that by paying more bribes would reduced the time spent in dealing with government.

This condition has rising various complaints regarding investment climate from investor. Study by Asian Development Bank (2003) and Institute for Economic and Social Research, Faculty of Economics University of Indonesia, LPEM-FEUI (2005) found that corruption has been one of the biggest constraints for firms, besides macroeconomic instability and policy uncertainty (Chart 3.1.). Beside those big three, other major constraints include: the legal system, infrastructure, taxes, labor skills and labor regulations, cost of finance, customs and trade regulations and licenses and permits.

From the chart, there are some improvements on business climate from 2003 to 2005, indicates that government has conduct economic policies to attract investment. Through INPRES No.3 2006, government issued investment policy package that contains a list of measures in 5 priority areas critical for investment climate improvement: general issues, customs, taxation, labor force and small-medium enterprises/cooperative. The package also specifies the expected outcomes and timetable for each policy measure. Overall, the package looks comprehensive and from this at least investors are assured that the government seems to be aware of the scope of the problems namely, non-existence of investment law, complicated taxation, rigidity in labor regulation and excessive cost from bureaucratic red tape both officials and under the table. But in the end, how much this package can boost investor confidence it will depend on whether the government can actually deliver its promises.

Chart 3.1.

Business Obstacles in Indonesia
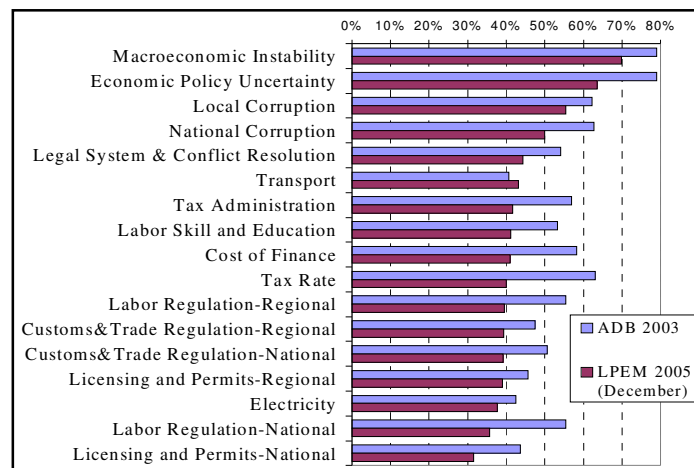
Source: LPEM-FEUI 2005

LPEM FEUI in cooperation with Coordinating Ministry of Economic Affairs and World Bank Jakarta is conducting series of survey during the period of 2005-2006, as a step to develop monitoring investment climate indicators in Indonesia. The survey is repeated in every six months started in the beginning of 2005.[2] The survey covers 600 firms in

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[2] LPEM FEUI, Monitoring Investment Climate in Indonesia: A Report from the Mid 2005 Survey, 2005

particular areas, where most of companies are agglomerated: Medan, Jakarta, Banten, Bandung, Semarang, Surabaya, and Makassar. It focused on large manufacturing firms, since the only complete sample frame to capture business climate in Indonesia is the 2003 Manufacturing Firms Directory published by BPS. The method of selecting the sample is by proportional random stratification at location level. Since there were no good sample frames for services, these sectors are not included. Agricultural sector are also not in the sample frame, since this sector has relatively minor problem in licensing regulation, compared to others[3]. Moreover, Small firms (number of workers smaller than 100) have a different set of obstacles because the small-scale companies are excluded from most of business-licensing regulations and will need to be covered in a separate survey. Accordingly, the general field survey will focus on manufacturing firms with 100 (one hundred) or more employees, covering a broad range of manufacturing sectors.

These firms information contains detailed information about how firms doing business in Indonesia, especially in maintaining relationship with government officials. The variables included in this survey is: labor regulation, business licenses and permits, merchandise clearance through customs, infrastructure, delays in VAT refunds, bribes, bureaucratic harassment, etc. Particularly this survey includes detailed question of licensed needed by firms to operate.

The survey use two main indicator of corruption, time spend with government officials and amount of bribes as percentage of total cost. These indicators are the main variables to explain grease hypothesis as the basic of corruption analysis. Variable time spent to deal with government officials is one indicator to explain the effect of bribes to efficiency, since in grease hypothesis, it is hypothesized that firms are giving bribes to government officials in order to fasten bureaucracy procedure. In the survey, this variable is treated carefully by making sure that enumerator differentiated time spent with government officials as client and as institution that managed bureaucracy procedure. We can see that comparing the similar studies in 2001, these two indicators of corruption dropped sharply. Bribes to government officials as share of production costs fell from 10.8% in 2001 to just 1.8% in 2005. At the same time, percent of senior management time spent dealing with government officials dropped from 12.8% in the 2001 survey to just 4.9%.

Table 3.1.
Key Corruption Variables

	2001	2005
1. Bribes Bribe as percentage of production cost	10.8	1.8
2. Time Spent Percentage of senior management time spent dealing with government officials as regulator (not as client, etc)	12.8	4.9

Based on the rate of corruption indicators above, it is expected that this quite high amount of bribes will fasten the bureaucracy procedure. But, it still found that Indonesia still experienced problem in dealing with bureaucracy procedure. By taking one picture of how firms getting their licensed to establish a company, it is still found that Indonesia has the longest time in getting the licensed, compare with other ASEAN countries, China and

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[3] LPEM FEUI, *The Impact Of Regional Taxes And Levies, Interregional Trade Barriers, And Cost Of Doing Business On Poverty Reduction*, 2003

Australia. It indicates that level of corruption in Indonesia is already chronic and burden investors, where the bribes given to the officials, do not always followed by a reduction in dealing with bureaucracy.

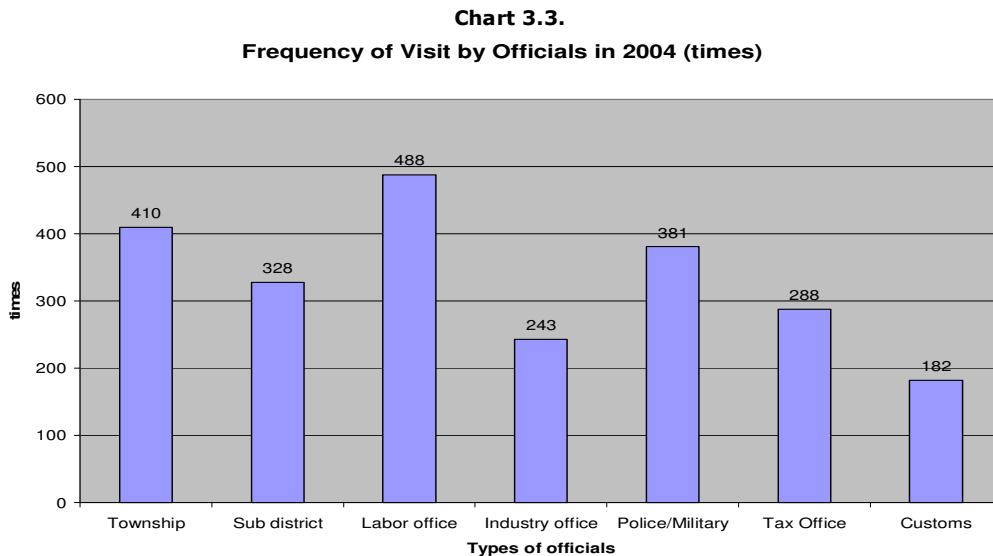Furthermore, the survey measured the extent of bureaucratic harassment by the frequency of government officials visit to a firm in 2004 from various institution. We interpreted visits as harassment, since officials are often to ask for bribery from firms when they are visiting. From the chart below, we can see that the most often institution who visits firms are come from the labor office. Usually, officials are checking whether there is a violation in labor regulation, etc. If we interpreted visits as harassment, then we can say that the higher probability of harassment comes from labor institution. Interestingly, the harassment from local labor offices is not significantly higher than local industry offices, although the former have jurisdiction over both purely labor matters and production/machinery related items.

Chart 3.2.
Days to Establish and Register a Limited Liability Company

Country	Calendar Days
Indonesia	151
Vietnam	56
Philippines	50
China	41
Thailand	33
Malaysia	30
Singapore	8
Australia	2

Source: LPEM FEUI 2005

Chart 3.3.
Frequency of Visit by Officials in 2004 (times)

Types of officials	times
Township	410
Sub district	328
Labor office	488
Industry office	243
Police/Military	381
Tax Office	288
Customs	182

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IV. Model Specification

In order to identify the probabilities of bribery incidence, specifically to know the characteristics of firms that have a higher probability in paying bribes, this paper will use the model specification as follows:

$$P_i = \beta_1 Z_i + \beta_2 O_i + \beta_3 L_i + \varepsilon_i \quad (1)$$

where i represent firms as the unit of observation.

Dependent variable P_i is the outcome variable, which is a categorical variable that represents the intensity of bribery incidence to happen, based on firms perception in Indonesia during 2004. To estimate this variable, we put explanatory variable in the right hand side. Variable Z_i is a vector variable of firm's characteristics that contain several variables as follow: Custom, EPZ, Year, Tax refund, Labor, and Sectors dummy. Variable O_i represents number of officials' type that visits the firms, while L_i represents dummy for locations. Thus, ε_i represents the error term.

Variable custom is a dummy variable to differentiate firms that have to deal with custom or not. A firm that has to deal with custom is a firm that imported or exported goods to other country. To do this, they have to deal with custom in order to have clearance, checking, paying tax, etc. This variable is expected to have a positive correlation with the probability of bribery incidence, since custom institution in Indonesia is known for its corrupt behavior. To have the clearance of the goods, firms are forced to follow a long procedure and have a face-to-face meeting with the officials.

Variable EPZ is a dummy variable to differentiate firms that are located in bonded zone (export processing zone) and those are outside it. This distinction is needed to asses on how much advantage of having firms locating inside the zone, in terms of having less bureaucracy hassle-particularly in the case of import clearance, bureaucratic procedure, etc. Firms locating in this area have the facility of having a shorter bureaucratic procedure. This variable is expected to have a negative correlation with bribery incidence probability, means that firms located in bounded zone will have smaller probability to have bribery incidence.

In firm characteristics, we also include dummy variable government to differentiate firms that have government shares in its total capital and those who don't have it. This variable is expected to have a negative correlation with probability of bribery incidence. It means that firms that have government ownership will have lower probability to experience bribery incidence, since officials is reluctant to ask bribery from their colleague.

Variable year is included since we expect that the longer time a firm established, then the more established the firm. By this, officials have more time in learning firm characteristics and extract optimal bribes. Variable labor is included to capture firms sized. Here, we expect that it will enter the model with a positive sign, where the higher company size, then the higher the probability of firms having bribery incidence.

Variable tax refund is a dummy variable to differentiate between firms that has experienced in applying for tax refund and those who are not. VAT refund is perceived as

the major source of corruption, where tax officials will tend to delay the refunds, and ask for bribes to fasten the procedure. Thus, this variable is expected to have a positive correlation with the dependent variable.

Variable labor denotes number of worker in the company in 2004. This variable represents the size of the company, where it is hypothesized that the bigger the firm, the smaller the probability of bribery incidence to take place. Here, officials are reluctant in asking bribery because bigger firms usually have a good relationship with local government. They not only a good tax and retribution payer, but also have a community development fund to local government.

In order to capture the variations of bribery between sectors, we put sector dummy in the sample frame. Since there are nine sectors, then it can be made for eight sector dummy in the model specification. The inclusion of this dummy variable is to know which sectors that have a particular characteristic that can make the probability of bribery incidence higher.

Besides firms' characteristics, the model specifications also use variable officials (O_i) as a measure of officials' type that visits firms in 2004. There are various government institutions that visited firms with various intentions. They are come from village district, sub-district, labor office, industry office, police/army, tax office, custom office, etc. Their intentions are checking licenses; inform new regulation, checking labor and factory condition, etc. It is hypothesized that the higher number of different official type visited firms, the higher bribery incidence probability that might happen. This variable is considered as an exogenous variable; since which type of officials that comes to the company is based on regulations applied.

Moreover, variations across different city were captured by dummy for locations (L_i). There are seven cities in seven different provinces in the sample, thus we have six dummies in the specification. The inclusion of this dummy variable is very important, especially to assess location variables to capture behavior of local government in asking bribes to the firms located in their region. By this, it is expected that we can have a different result for each region.

Since variable P_i is the firm's response on bribery, it is very difficult to get the precise answer. Asking bribery is very sensitive and respondents are reluctant to give their information. In the questionnaire it was asked the intensity of bribery incidence takes place in the company. In order to get the response, it gives six options: never, very seldom, seldom, not that often, often and frequently. This variable becomes our categorical dependent variable P_i, in which estimating this variable in equation (1) with linear regression is not appropriate. The method going to be applied in this study is ordered logit model. After using this method, we could interpret variable P_i as the probability of bribery incidence.

Another question that we try to answer is what affects the amount of bribery that firms decided to pay. We could use a similar equation with the first specification, but in different dependent variable:

$$B_i = \beta_1 + \beta_2 Z_i + \beta_3 O_i + \beta_4 L_i + \varepsilon_i \qquad (2)$$

The notation and specification use in this model are the same as equation (1), except that B_i is the amount of bribes paid by the firm as percentage of its total cost per year. By estimating this specification, we would like to explore whether firm that has higher probability in paying bribes, also will tend to pay higher bribes or not. This can be done by relating the result from estimating equation (1) and equation (2). For instance, if we have a positive sign of a coefficient in equation (1) but negative sign in equation (2), it could be interpreted that firms that have higher probability in paying bribes, not always gives a big amount of bribes. This could happen if firms often experiencing bribery incidence, but they only give a small amount of bribes, which is not quite significant.

In this specification, endogeneity problem might arise from the inclusion of variable officials. Here, we may suspect that this variable might not fully exogenous, since it can be affected by omitted variables. This problem can be solved by finding a right instrument variable and estimate the model using Two Stage Least Squares (TSLS).

The last question that the paper tries to answer is to test grease hypothesis at firm level in Indonesia, whether it holds or not. In order to test this hypothesis, we will estimate the equation as follows:

$$T_i = \beta_1 + \beta_2 B_i + \beta_3 Z_i + \beta_4 O_i + \beta_5 L_i + \varepsilon_i \qquad (3)$$

Again, the notation and specification use in this model are the same as equation (1), except T_i denotes time of a manager have to spend with government officials. The main variable in this specification is variable bribes, B_i. Negative sign of this variable will confirm the grease hypothesis. It means that firms that give more bribes will reduce the amount of time spend with government officials, or in other words firms pay bribes to fasten bureaucracy procedure. This specification is going to be estimated by using interval regression method, since we have the data set of T_i in an interval form.

A point we have in estimating first equation is that we have a categorical dependent variable. The questionnaire was asking whether firms have to pay bribes to get public services. There are six options available for the respondents to answer this question in ordered category: never, very seldom, seldom, not that often, often and frequently. This option was given to avoid rejection from respondent in giving an exact answer about bribery.

Since the dependent variable is categorical, then estimating equation (1) with OLS is not appropriate. To estimate equation (1) this paper will apply limited dependent model. Moreover, since there are more than two categorical dependent variables in an ordered form, then using an ordered response will give more advantages where it is using all information available. Moreover, this paper assumed that the error term has logistic distribution, so that it is allowed to estimate equation (1) using ordered logit model.

In the specification, categorical dependent variable P_i is an observed ordinal variable which in turn is a function of latent variable P_i^*. This variable is unmeasured and continues. This variable is determined by exogenous variables (X_i):

$$P_i^* = X_i \beta + \varepsilon_i$$

where variable P_i^* has five cut points. The value on the observed variable P_i depends whether value of P_i^* cross the particular cut points or not. Assuming that the error term has a logistic distribution, we have:

$P_i = 1$ if the firms say "never" pay bribes ($P_i^* < \gamma_1$)

$P_i = 2$ if the firms say "very seldom" pay bribes ($\gamma_1 \ll P_i^* < \gamma_2$)

$P_i = 3$ if the firms say "seldom" pay bribes ($\gamma_2 \ll P_i^* < \gamma_3$)

$P_i = 4$ if the firms say "not that often" pay bribes ($\gamma_3 \ll P_i^* < \gamma_4$)

$P_i = 5$ if the firms say "often" pay bribes ($\gamma_4 \ll P_i^* < \gamma_5$)

$P_i = 6$ if the firms say "frequently" pay bribes ($\gamma_5 \ll P_i^*$)

Cut points γ_i is an unknown parameter, that is estimated jointly with β, and $\gamma_1 < \gamma_2 < \gamma_3 < \gamma_4 < \gamma_5$. By using estimated $x_i\beta$, the ordered logit model can be used to estimate the probability that the unobserved variable P_i^* falls within the cut points. Parameter γ and β are estimated by maximizing the log likelihood function.

In order to estimate Equation (2), specifically to explore how much does firms pay bribes in smoothing their business, there is a problem that could arise. A zero response from firms is a nature habit of firms in giving their answer. They were reluctant to give precise answer, since bribery is illegal in every country. Zero response may arise from two possibilities. First possibility is firms do not pay bribes at all, which recorded as true zero. The second possibility is, the amount of bribery pays by firms is too small compare to firm's total cost in a year.

To solve this zero response problem, there are two approaches available. The first approach is by applying tobit regression model. This method is very useful for a dependent variable with partly continues and partly discrete distributions. In this approach the dependent variable has been "censored" above or below a certain cutoff. Other approach is by applying heckman sample selection model. This model is very useful in which observations are simply unavailable when the dependent variable is above or below a certain cutoff. Ignoring zero response and estimating the model with OLS method will give an inconsistency result. But since we only have 5 zero response in our data set, then estimating the model with OLS will not makes the result suffered much from inconsistency problem.

The last question that we try to answer is to test the grease hypothesis of corruption in firms' level. In order to do this, in equation (3) we put variable time spend as the dependent variable, and amount of bribery as the main explanatory variable. The dependent variable is in an ordered scale form asking how much does manager has to spend their time in percentage with government officials. The response is in rating from (1) less than 5%, (2) 5-15 percent, (3) 15 -25 percent, (4) 25-50 percent, (5) 50-75 percent and (6) more than 75 percent. Since in the dependent variable has interval response, then, we could use interval method to estimate the grease hypothesis.

V. Result

This paper use data of large manufactured firms in nine sectors located in seven different big cites in Indonesia. The data set were collected by *The Monitoring Investment Climate Indicators* survey, conducted by Institute for Economic and Social Research, Faculty of Economics, University of Indonesia (LPEM-FEUI), cooperating with Coordinating Ministry of Economic Affairs and World Bank Jakarta.

Table 5.1.
Variable Definitions

No.	Variable	Details
1.	Probability of bribery incidence	1 = never 2 = very seldom 3 = seldom 4 = not that often 5 = often 6 = frequently
2.	Time spending with officials	1 = less than 5% 2 = 5% - 15% 3 = 15% - 25% 4 = 25% - 50% 5 = 50% - 75% 6 = more than 75%
3.	Bribes	Ratio of bribery payment per total cost in 2004 in log (1+Bribe) value
4.	Custom (dummy)	Deal with custom office ;1 = if firms is an export/import company
5.	EPZ (dummy)	Firms located in Export Processing Zone; 1 = if company was located in EPZ
6.	Gov (dummy)	Share of government ownership in the company; 1=if there are share of government ownership.
7..	Year	Year firm established
8.	Tax refund (dummy)	Deal with Tax office to ask for tax refund ; 1 = if firm apply for tax refund to the tax office; 0 = otherwise
9.	Labor	Log value of Labor in 2004
10.	Officials	Number of officials type that visit firms
11.	Dummy for city	
12.	Dummy for sector	

The survey is repeated periodically every six months, starting in the beginning of 2005 to track business climate in Indonesia. It covers 600 firms in seven big cities in Indonesia: Medan, Jakarta, Banten, Bandung, Semarang, Surabaya, and Makassar. These firms information contains detailed information about how firms doing business in Indonesia, especially in maintaining relationship with government officials. The variables included in this survey is: labor regulation, business licenses and permits, merchandise clearance through customs, infrastructure, delays in VAT refunds, bribes, bureaucratic harassment, etc. Particularly this survey includes detailed question of licensed needed by firms to operate, how many government officials' visits to these firms, and which officials come.

The module asks respondents the sensitive question in bribery incidence: whether they have to pay bribes to get some public services or to smooth business, and if they do, how much do they have to bribe the officials. Since there is a tendency that respondents are unwilling to reveal their behavior in paying bribes, then this survey was using some methods in asking this sensitive question. An ordered response was delivered to the following question: "Please give your answer on the statement: Companies like yours must pay additional cost (bribes) to government institutions to finish business affairs". The terms 'company like yours' makes respondents comfort in giving response. Furthermore, to ensure firms cooperation and to avoid 'survey fatigue' a special letter from the Coordinating Minister of Economic Affairs were brought by each enumerator.

Table 5.1.
Estimate Probability of Bribery Incidence

Dependent Variable: Intensity of Bribery Incidence
Method   : Ordered Logit

Variable	Coef.	P>z	Test Jointly dummy significances
Firms characteristics (Z)			
Custom	0.476	0.018	
Epz	0.218	0.196	
Gov	-0.439	0.369	
Year	0.003	0.687	
Tax refund	0.190	0.277	
Labor	-0.413	0.044	
Sectoral Dummy:			0.7207
• Food – base dummy			
• Textile	0.363	0.241	
• Wood	0.027	0.940	
• Paper	-0.414	0.372	
• Chemical	-0.284	0.363	
• Non Metallic	0.170	0.656	
• Basic Metallic	0.053	0.877	
• Basic Non Metallic	0.038	0.901	
• Other	0.555	0.343	
Officials (O)	0.239	0.000	
Location Dummy (L)			0.0319
Jakarta – base dummy			
Sumatera	0.040	0.925	
Banten	0.436	0.109	
West Java	0.192	0.408	
Central Java	0.092	0.803	
East Java	-0.396	0.126	
South Sulawesi	-0.509	0.279	
_cut1	4.267		
_cut2	5.073		
_cut3	6.045		
_cut4	6.902		
_cut5	9.009		
Number of observations	562		
LR chi2	77.63		
Pseudo R2	0.0412		

Table 5.1. shows the regression result in estimating equation (1) to answer the question on who is paying bribes. The sign of the coefficients could be interpreted as how the probability of bribery incidence will increase or decrease as the explanatory variable change. The marginal effects are showing the effect of one unit changes of independent variable in affecting each outcome of dependent variable. In an ordered logit model, the marginal effects of the regressors on the probabilities are not equal to the coefficients. The coefficients of parameter β_i can only clearly determine the marginal effect of explanatory variable on the extreme probabilities, since intermediate value is ambiguous.

The regression result shows that in firm's characteristics; almost all variables are not significant in affecting dependent variables except, variable custom, variable labor, and variable officials. Thus, all dummy variables for location and sector are not significant at all. However, the joint test for location dummy is able to reject the null hypothesis that these dummy variables do not affect the dependent variable.

Variable custom is a dummy variable, which differentiated between firms that have to deal with custom or not. Having the positive sign of this variable gives a not surprising result. It means that a firm that have to deal with custom, have a higher probability in paying bribes. This variable entered the model significantly positive, with a quite high coefficient.

This result is confirming a perception that custom institution in Indonesia is known for its corrupt activity. In custom offices, there are also other institutions that have a big part in order to clearance goods, like port administration, police, shipping agency that also determine the length of export import clearance. Usually, each part will ask for bribery from the company.

Variable labor enters the model with negative sign (significant at 5%). This can be interpreted as the higher number of labor will decrease the probability of bribe incidence. By this, we can say that officials are more likely to ask for bribes to smaller firms, since it is easier to pursue them. Usually, bigger firms have higher bargaining power with government officials, since they have a large contribution on government income, especially from tax and retribution. Moreover, bigger firms have a special relationship with local government. They have a community development fund for the specific region.

We can also see that variable officials entered the model with a positive sign (very significant). This means that more type of officials that visit the firms, the higher the probability of bribe incidence. This is quite plausible that every visit from the specific type of officials will lead to a higher probability for the officials in asking bribes**.**

In order to answer the second question, on how much do firms pay bribes, we estimate second equation using OLS model. This paper ignores zero response problems, by considering that the data set only consist 5 zero response from the regression result in Table 5.1. we can analyze this result by relating with the first regression about probability of bribery incidence.

In table 5.2., we can see that variable custom enter the model with insignificance coefficients; while in the first regression in enter with a positive and significant coefficients. This can be interpreted that firms who have to deal with custom does have a higher probability for bribery incidence, but the amount of the bribes is not quite significant for the firms. In another words, since we use the intensity to be our dependent variable for bribery incidence, then it can be said that there were a lot of intensity for firms in paying bribes to custom institution, but in every incidence it only cost a small amount of bribes.

Variable labor enters the second regression with the same sign with first regression, only in slightly significant coefficients. It means that the bigger firms will have a smaller probability of bribery incidence, and smaller amount of bribes being paid by firms. Variable officials enter the model with positive and significant result in this second regression. This confirmed the first result, that more officials type that visiting firms, will lead to a higher probability in bribery incidence, thus higher amount of bribes being paid.

Table 5.2.
Estimate the Amount of Bribes

Dependent variable: log (bribes+1)
Method   : OLS

Variable	Coef.	P>z	Test Jointly dummy significances
Firms characteristics (Z)			
Custom	-0.006	0.880	
EPZ	0.022	0.496	
Gov	-0.103	0.326	
Year	-0.001	0.521	
Tax refund	0.053	0.108	
Labor	-0.064	0.113	
Sectoral Dummy:			0.456
• Food – base dummy			
• Textile	0.034	0.565	
• Wood	0.045	0.501	
• Paper	-0.096	0.303	
• Chemical	-0.081	0.187	
• Non Metallic	-0.055	0.485	
• Basic Metallic	-0.086	0.207	
• Basic Non Metallic	-0.065	0.280	
• Other	0.032	0.772	
Officials (O)	0.023	0.004	
Location Dummy (L)			0.565
Jakarta – base dummy			
Sumatera	0.147	0.115	
Banten	-0.085	0.088	
West Java	-0.040	0.371	
Central Java	0.049	0.463	
East Java	-0.027	0.609	
South Sulawesi	0.178	0.090	
Constanta	2.305	0.451	
Number of observations	466		
R2	0.088		
Adjusted R2	0.045		
Prob>F	0.005		

To test the grease hypothesis, Table 5.3. shows regression result in estimating equation (3). In the survey it is asked to the respondents about the percentage time of "senior manager of your company" was spent with government officials as regulators (not as clients) to expedite business. By putting variable bribes in the tight hand side allows us to test the grease hypothesis of corruption. This hypothesis stated that firms pay bribes to fasten the bureaucracy procedure. The answer is an ordered scale, rating from (1) less than 5%, (2) 5-15 percent, (3) 15 -25 percent, (4) 25-50 percent, (5) 50-75 percent and (6) more than 75 percent.

From the result, we see that variable bribe entered significantly the model with positive coefficients. This result encounters greasing argument, but support previous study by Kuncoro and Vernon (2004). The argument is firms need to bribe to fasten the regulation, but also they still have to devoted more time to spend with the officials. This also shows that corruption in Indonesia is already chronic and already hampered firms. The field survey conducted by LPEM-FEUI support this argument, that firms are complaining a lot

of this situation, especially after decentralization in 2001, where local government have more authority in managing its income and regulation. After decentralization, Indonesia not only decentralizes its government structure, but also its regulation and corruption behavior among officials.

Table 5.3.
Estimate the Grease Hypothesis

Dependent variable: Time Spend of Manager
Method   : Interval Regression

Variable	Coef.	P>z	Test Jointly dummy significances
Log (Bribes+1)	0.051	0.000	
Firms characteristics (Z)			
Custom	0.009	0.110	
Epz	0.000	0.959	
Gov	0.022	0.149	
Year	0.000	0.816	
Tax refund	0.002	0.658	
Labor	0.000	0.970	
Sectoral Dummy:			0.3324
• Food – base dummy			
• Textile	-0.008	0.338	
• Wood	-0.011	0.244	
• Paper	-0.004	0.782	
• Chemical	0.009	0.261	
• Non Metallic	-0.008	0.438	
• Basic Metallic	0.004	0.648	
• Basic Non Metallic	0.008	0.355	
• Other	-0.002	0.901	
Officials (O)	0.002	0.158	
Location Dummy (L)			0.4155
Jakarta – base dummy			
Sumatera	-0.005	0.714	
Banten	0.007	0.275	
West Java	-0.001	0.836	
Central Java	0.011	0.245	
East Java	0.004	0.566	
South Sulawesi	-0.015	0.307	
Constanta	-0.084	0.841	
Number of observations	462		
LR chi2	77.42		

Moreover, this paper is trying to explore this result by considering competitiveness argument of giving bribery to the local officials. Since corruption in Indonesia is already a chronic and persistent case, then every firm will pay bribes due to competitiveness reason. In this competitive condition, all firms will pay bribes to fasten bureaucracy procedure that will make government officials bargaining power is increase as a monopolist in asking bribes. It means,, if all firms are paying bribes then it will not change the time spend to deal with officials in overall. Local officials will not consider a firm that pays "average bribes".

In order to explore this argument, we can analyze by computing the residuals of second regression. The residual is the difference between actual and estimated bribes (represents the "average bribes"). Since we use a micro level data of firms, then we can say that the estimated bribe is the optimal bribes value, or the firms' willingness to pay bribes for each firms.

Negative residual means that the actual bribes are smaller than firm's willingness to pay. We can divide the residuals into quintiles categories to grouped companies based on their willingness to pay. The range of this quintile value is -0.53640 until -0.227176 for first quintile (D0), -0,226821 until -0,154504 for second quintiles (D1), -0,154067 until -0,037883 for the third quintiles (D2), -0,031473 until 0,186307 for the fourth quintiles (D3), and 0,190959 until 1.305135 for the fifth quintile (D4). These quintiles could be use to categories firms into 5 groups, which will make us to have 4 categorical dummy.

Thus, we could use this categorical dummy in equation (2), and replace variable bribes. The specification could be written as follows:

$$T_i = \beta_1 + \beta_2 D1_i + \beta_3 D2_i + \beta_4 D3_i + \beta_5 D4_i + \beta_6 Z_i + \beta_7 O_i + \beta_8 L_i + \varepsilon_i$$

In Table 5.4., we can see that almost all dummy variables quintiles is not individually significant in affecting dependent variable. However, the joint test is able to reject the null hypothesis that these dummy variables do not affect the dependent variable. This indicates that the grease hypothesis still does not holds, even there is one dummy variable entered with negative signs, but this variable still not significant. Interestingly, dummy variable for the highest quintile entered the model with significant result and positive coefficients. It indicates that level of corruption in Indonesia is extremely chronic, that the higher amount of bribes compare to its firm's willingness to pay of bribes, will lead to the longer time to spend with government officials.

The main problem that might arise by using this method is the presence of endogeneity problem caused by causality effect with explanatory variables with the dependent variable, or the explanatory variable have correlation with the omitted variable which cant entered the model. This problem will produce a biased coefficient that may lead the analysis into a wrong result. It can be solved by finding the right instrument variable, and estimate the model using two stages least squares methods. Unfortunately, in this study we cannot find a strong and convincing variable to instrument the endogenous variable due to the limitation of variables we have from the data set. Another approach that can be applied to solve the endogeneity problem is by using a panel data analysis with fixed effects method.

It is interesting to find that variable officials always entered the model with significant results. Here, we try to investigate the randomness of this variable by explore the determinants of this variable. This can be done by estimating variable officials with all firms' characteristics variables, and dummy variables for locations. The method used in this estimation assumed that variable officials follow Poisson distribution, where the estimation result and marginal effects of each variable are reported in the table 5.5.

Table 5.4.
Relative Grease Hypothesis Estimation

Dependent variable: Time Spend of Manager
Method : Interval Regression

Variable	Coef.	P>z	Test Jointly dummy significances
Bribes quintiles dummy			0.000
quintile2 (D1)	-0.007	0.349	
quintile3 (D2)	0.006	0.442	
quintile4 (D3)	0.007	0.315	
quintile5 (D4)	0.031	0.000	
Firms characteristics (Z)			
Custom	0.008	0.126	
Epz	0.002	0.702	
Gov	0.016	0.293	
Year	0.000	0.837	
Tax refund	0.004	0.401	
Labor	-0.002	0.679	
Sectoral Dummy:			
• Food – base dummy			
• Textile	-0.003	0.729	
• Wood	-0.008	0.396	
• Paper	-0.008	0.545	
• Chemical	0.009	0.319	
• Non Metallic	-0.009	0.423	
• Basic Metallic	0.000	0.992	
• Basic Non Metallic	0.006	0.489	
• Other	-0.002	0.923	
Officials (O)	0.003	0.023	
Location Dummy (L)			0.5771
Jakarta – base dummy			
Sumatera	0.001	0.959	
Banten	0.005	0.506	
West Java	-0.002	0.690	
Central Java	0.013	0.188	
East Java	0.003	0.684	
South Sulawesi	-0.008	0.580	
			0.5231
Constanta	-0.069	0.874	
Number of observation	462		
LR chi2	74.41		

From the result, we found that there are some variables are significantly affecting variable officials. It indicates that variable officials do not random. There are some interesting findings from this estimation, where firms that have to deal with custom (Export Import Company) has a positive signs and statistically significant. This result is quite reasonable since; Export-import Company tends to deal with more officials compare with non export-import company. The other result is, variable EPZ has a negative sign coefficients and statistically significant. This is suitable with the fact that a firm located in EPZ or bonded zone tend to deal with less officials compare with other firms outside the zone.

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Table 5.5.
Estimating Randomness of Officials

Dependent variable: Officials
Method   : Poisson Regression

Variable	Coef.	P>z	Test Jointly dummy significances
Firms characteristics (Z)			
Custom	0.09632	0.074	
Epz	-0.07375	0.097	
Gov	-0.09664	0.458	
Year	-0.00071	0.72	
Tax refund	0.07577	0.1	
Labor	0.06464	0.23	
Sectoral Dummy:			0.4744
• Food – base dummy			
• Textile	-0.02051	0.801	
• Wood	-0.02459	0.8	
• Paper	0.119158	0.349	
• Chemical	0.136498	0.113	
• Non Metallic	0.089836	0.396	
• Basic Metallic	0.107431	0.256	
• Basic Non Metallic	0.133422	0.115	
• Other	0.2250306	0.134	
Location Dummy (L)			0.0089
Jakarta – base dummy			
Sumatera	0.079709	0.501	
Banten	0.191933	0.007	
West Java	0.110083	0.084	
Central Java	0.025189	0.797	
East Java	0.044832	0.538	
South Sulawesi	0.353856	0.002	
			0.5231
Constanta	2.437952	0.537	
Number of observation	574		
LR chi2	36.62		
Pseudo R2	0.0152		

V. Conclusion

This study tries to test whether the grease hypothesis at firm level in Indonesia is holds or not. For this purpose there are there are three models has been estimated in this study. The first model is estimating the probabilities of bribery incidence, specifically to know the characteristics of firms that have a higher probability in paying bribes. Ordered logit method is applied to estimate this model, since we use a categorical dependent variable. From the estimation result, we found that firms that have to deal with custom (export import company) will have a higher probably to have a bribery incidence compare to non-custom firms (non export import company). Moreover, it is found that firms with more labor will relatively have a lower probability for bribery incidence. Intuitively, we can say that officials are more likely to ask for bribes to smaller firms, since it is easier to pursue

them. Usually, bigger firms have higher bargaining power with government officials, since they have a large contribution on government income, especially from tax and retribution.

In the second model, this study investigates on what affects the amount of bribery that firms decided to pay. It is interesting to compare the result from this estimation with the previous estimation. Here, different with previous result, variable custom entered with insignificant results, means that firms who deal with custom do have a high probability of bribery incidence, but the amount of the bribes is not quite significant for the firms.

In the third model, we try to test the grease hypothesis. Here, we estimate variable time spend with variable bribes. The negative coefficients of variable bribes could be interpreted that the higher amount of bribes would fasten the time spend with government officials (grease hypothesis does holds). This study uses an OLS method and found that grease hypothesis does not hold at firm level in Indonesia case.

Moreover, this paper tries to explore this result by considering competitiveness argument of giving bribery to the local officials. Since corruption in Indonesia is already a chronic and persistent case, then every firm will pay bribes due to competitiveness reason. In this competitive condition, all firms will pay bribes to fasten bureaucracy procedure that will make government officials bargaining power is increase as a monopolist in asking bribes. To explore this argument, we can analyze by computing the residuals of second regression, which can be interpreted as the difference between actual and firms willingness to pay bribes. However, incorporating this method, still confirm that grease hypothesis does not hold.

The main weakness is this study is possibility of endogenity problem that may lead to a bias estimation result. It can be solved by finding the right instrument variable and estimate the model using two stages least squares methods. Unfortunately, in this study we cannot find a strong and convincing variable to instrument the endogenous variable due to the limitation of variables we have from the data set. Another approach that can be applied to solve the endogeneity problem is by using a panel data analysis with fixed effects method.

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