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GREASE OR SAND THE WHEEL? THE EFFECT OF INDIVIDUAL BRIBES ON THE DRIVERS OF AGGREGATE PRODUCTIVITY GROWTH

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ABSTRACT

The Asian paradox suggests a net grease-the-wheel effect of corruption. Under the assumption of diminishing returns to bribes, going beyond the single-representative-firm assumption, we argue that the grease and sand-the-wheel effects are likely to co-exist among a large number of firms, and that the industrial effect of corruption depends on the productivity drivers that fuel firm's dynamics. We decompose Indonesian manufacturing labor productivity growth while contrasting and comparing the contributions of no-, low- and high-bribing firms over the period 1975-94. We confirm the coexistence of grease and sand-the-wheel effects. Industrial productivity gains stem first from the net entry of non-corrupted firms, evidencing a sand-the-wheel effect. Market share reallocation from low to high productivity growth incumbents paying low bribes is the second source of productivity growth, pointing at a grease-the-wheel effect. Intra-plant productivity growth is overall negative and largely attributable to high-corruption plants, suggesting a sand-the-wheel effect.

***Keywords**: corruption, bribery, productivity*

INTRODUCTION

The literature has evidenced an "Asian paradox" in that, compared to other countries, despite high levels of corruption, Asian countries, and in particular Indonesia along with China, display high economic growth rates (Rajan & Zingales, 1998, Kaufman & Wei, 1999; Rock & Bonnett, 2004). The authors suggest a "grease-the-wheel" effect of corruption in those countries, meaning that corruption brings some benefits in a second best perspective, as opposed to a "sand-the-wheel" effect where corruption is only harmful (Méon & Weill, 2010). Vial & Hanoteau (2010) confirm this for Indonesian firms: on average, firms paying more bribes enjoy a higher output and productivity growth rates. We however, argue that this neither means that all corrupted plants enjoy higher productivity growth rates, nor that macro-economic growth is principally attributable to the high productivity growth corrupted plants. In other words, the output-weighted aggregate macro-economic growth could well be the net result of a mixture of greasing and sanding the wheels at the micro-economic level.

A recent set of empirical studies tries to reconcile these two opposite effects, arguing that they coexist, and that the dominance of either one or the other is contextual, contingent on institutional features (Bardhan, 1997; Méon & Sekkat, 2005; De Rosa, Gooroochurn & Görg, 2010 ; Zhou & Peng, 2012; Dreher & Gassebner, 2013) and culture (Kaufmann & Wei, 1999) at the macro-level, or firms' characteristics such as firm size (Zhou & Peng, 2012) at the micro-level.

In order to evidence this coexistence, it is necessary to investigate the effect of corruption on the macro-level while accounting for the diversity of firms in terms of their size and productivity growth. In this respect, a sizeable literature analyses the dynamics of micro-economic firm performance and its macro-economic or industry outcome (Roberts & Tybout, 1996), decomposing aggregate productivity growth into different drivers, namely 'intra-plant', firms' entry and exit, and the reallocation of output market share components between incumbents, but does not, to date, include the moderating effect of corruption.

Following an extensive theoretical and empirical literature, we argue that these drivers may be simultaneously and differently impacted by corruption, positively and/or negatively, and in contradicting ways. Corruption may affect these drivers through its influence on investment and technological progress, as well as on allocations in the output and inputs markets, resulting in the coexistence of the grease and sand-the-wheel effects, depending on the firms and industries.

In this paper, we thus analyze the effects of an individual firm's corruption payments on industry productivity growth and its components. This approach allows the unveiling of the complex effects of corruption on the dynamics of industrial productivity growth channelled by individual firms' interactions, and as a result, on the industrial level. It will enable us to identify the components, or drivers, of productivity growth that are affected positively (grease-the-wheel), and those that are affected negatively (sand-the-wheel).

This is important with regard to public policies aiming to reform institutions, combat corruption and fostering industrial development. Indeed, our findings could push policy-making in terms of the directions it needs to take, and the intermediary objectives it needs to target, which depend on whether corruption has a grease or sand-the-wheel effect.

In the first section, we review the literature on the effect of corruption on productivity growth. The second section presents our data, the *Statistik Industri*, a large panel dataset of Indonesian manufacturing for 1975-1994, and the methodology of aggregate labor productivity decomposition. The third section exposes our results, while the fourth section concludes and offers a discussion geared towards policy recommendations.

CORRUPTION AND PRODUCTIVITY GROWTH

Tybout (1996, 2000) suggests that firm's heterogeneity, in terms their demographic characteristics such as their age, size and location, but also in terms of their technology and production factors mix, is an important feature of any economy, and of developing economies in particular. This contradicts mainstream economic theory that considers all firms as identical, "the representative firm", implying that all industry-level productivity improvements necessarily and uniquely stem from within-firm productivity improvements. In fact, because of firm heterogeneity, they also come from market dynamics such as the firm's entry and exit, and the reallocation of market share among existing firms. In what follows, we explore the literature on the potential effects of corruption on firm-level productivity changes and its combined effects on the three drivers of industry-level productivity improvement.

Corruption and intra-plant productivity growth

Corruption may affect the within-firm drivers of productivity change through its impacts on the decisions to invest, adopt new technologies, innovate or allocate resources efficiently. Mauro (1995) suggests that corruption is detrimental to investment and growth, which is confirmed empirically by Méon and Sekkat (2005). Dixit (1989) and Lambson (1991) suggest that in a context of institutional uncertainty, firms are reluctant to invest in new technologies, and instead engage in more labour intensive technologies, which is detrimental to individual firm's productivity growth. A closely related argument is that corruption may reduce societys trust in industry/business.[1] Bjornskov and Méon (2010) explain that this trust factor has a strong

[1] Bjornskov (2003) and Kingston (2005) evidence that high levels of social capital, measured as trust, reduce the level of corruption. Stulhofer (2004) finds that the perception of increased corruption led to a drop in the level of social capital.

effect on investment and therefore on productivity.[2] Indeed, in situation of distrust, more resources are devoted to the protection of persons and property, instead of being allocated to productive activities.

Firms' profits and cash flows motivate governments' and bureaucrats' rent seeking and rent extraction activities (Rosa and Pérard, 2010), and corruption acts as a highly distorting tax that reduces businesses' incentive to invest (Wei, 2000. However, in some instances, corruption might serve as a means of tax evasion, thereby improving investment efficiency (Méon and Weill, 2010 reviewing Leff, 1964).

Across OECD countries and sectors, red tape and excessive and anti-competitive regulations on product markets raise firms' capital stock adjustment costs, distort their abilities to react to changes in their surrounding conditions (Alesina et al., 2005), which leads to lower investment. Competitive pressure is depicted as one of the main drivers of investment and efficiency improvements (Arnold et al., 2008), as it pushes firms into innovating to survive. Initially starting from a very low degree of competition, any increase should foster the innovation rate among incumbent firms (Aghion et al., 2005). The authors however underline that the effect is sometimes ambiguous, with higher competition potentially reducing post-entry rent and therefore discouraging innovation.

Firm-level policy distortions that shape the business environment, affect the allocation of resources across firms, and therefore productivity growth (Bartelsman et al., 2009). As an intuitive example, firms enjoying political connections have easier and cheaper access to credit than other more productive firms without such support. In the same vein, Restuccia and Rogerson (2008) show that fiscal measures distorting interest rates lead to a misallocation of capital, resulting in low aggregate output levels per worker. This is supported by Kwon, Narita and Narita (2009) who, in the case of Japan, evidence that "Zombie lending" (bank lending directed to failing plants) distorts the reallocation of capital, thereby negatively impacting labour productivity growth.

Finally, if within firms, corruption increases returns on rent-seeking activities (e.g. bribing for obtaining valuable licenses) over the more productive ones (Baumol, 1990; Murphy et al., 1991), it is likely to distort the allocation of managerial talent, thus reducing the productivity growth potential. Corruption increases factors requirements, and diverts managerial effort away from factors coordination, which reduces productivity (Dal Bo & Rossi, 2007). As bureaucrats manipulate the red tape to extract more bribes, managers have to spend more time in dealing with over-regulation and corruption. However, the ability to obtain favours through bribes may be positively correlated with talent (Bailey, 1966). This talent is a combination of managerial and organisational skills that can also reflect the overall capacities of the firm to be productive. In this sense, firms paying more bribes could also be the most productive ones.

Most of the literature presents corruption as either exclusively sanding or exclusively greasing the business wheels. Some authors however concede that, once the quality of the institutional environment is controlled for, both effects can coexist and depend on individual firms' characteristics such as their size (Zhou & Peng, 2012). We contend that such individual firms' characteristics can include the size of their bribe payments.

Bribe payments have a positive effect, as they enable firms to avoid or reduce taxes and administrative burdens (Leff, 1964; Lui, 1985), or allow them to influence, and in some instances capture, public decision making (Stigler, 1971; Peltzman, 1976; Hellman et al., 2003). Indeed, managers of firms pay out gifts, banquets and bribery in order to build and sustain political ties with bureaucrats and government officials (Anand et al., 2005; Meschi, 2009; Peng & Luo, 2000). In return, they expect privileges such as access to resources (land, energy, credit) at below-market prices, and reduced or absent local taxes and fees (Park &

[2] Knack and Keefer (1997) and Dearmon and Grier (2009) provide empirical evidences of the relation between trust and investment and economic performance.

Luo, 2001). Zhou and Peng (2012) observe that larger firms benefit more from bribe payments than smaller ones do. Their larger initial resources allow them to pay larger bribes (size effect), and there are economies of scale in bribe spending for developing political ties. This suggests that the positive effect of bribes is increased by the amount spent, but only up to a certain threshold. Beyond this threshold, additional bribes are either ineffective or only produce a small extra benefit. For firms already paying large amounts in bribes, any additional expense would neither further develop their political ties, nor improve their access to resources, nor compensate for fierce competition and regulatory uncertainty (Wang et al., 2013). As an illustration, large firms with political ties and strong bargaining positions limit their bribe payments. They can better resist rent extortion and the overwhelming administrative burdens and taxes imposed by corrupt officials (Zhou & Peng, 2012).

Beyond a certain threshold, bribes can even affect productivity negatively. In crony capitalist systems (e.g. the well-documented Chinese and Indonesian systems), large firms cannot resist corruption and rent extortion because they are controlled by the corrupt elite. Those firms are treated as 'cash cows' and pay large amounts of bribes that resemble taxes, distorting their performance (Shleifer & Vishny, 1993; Wei, 2000).

We can therefore reasonably assume that in a corrupt system, there are positive but diminishing returns to corruption payments, and beyond a certain threshold (that we call 'turning point A'), those eventually become negative (inverted U-shape). Individual bribe payments grease-the-wheel of industry intra-plant productivity growth until turning point A, and sand-the-wheel after this threshold. As the effects of corruption on firm-level productivity growth is likely to differ with the amount of individual bribe payments, and as industry intra-plant productivity growth is the firm's market share-weighted sum of firm-level productivity growth rates, the real aggregate effect depends on the distribution of firms in terms of their size, the amount of bribes paid, and associated firm-level productivity growth.

Corruption and market share reallocation

Corruption might curb industry-level productivity growth through an inefficient reallocation of output market share among incumbents. This is the case when relatively less productive firms pay bribes in order to maintain or increase their share at the expense of relatively more productive incumbents. In exchange for their bribes, the bribe-paying firms may be favoured during public tendering processes, or obtain measures and regulations that favour them and harm their competitors. On the other hand, and following Beck and Maher (1986) argument, rational officials can favour firms presenting higher productivity growth prospects so as to secure higher bribes, leading to competitive market share reallocation, thereby contributing positively to productivity growth.

Distorting competition on the output market, corruption affects market share reallocation among incumbents. The real aggregate effect depends on the distribution of firms in terms of market share changes; the amount of bribes paid, and associated firm-level productivity growth.

Corruption and firm entry and exit

Corruption often leads to low or absent competition in product markets. Djankov et al. (2002) show empirically that countries with higher levels of corruption have heavier entry regulations and less competition.

Corruption is likely to distort the market dynamic source of productivity growth. Indeed, policies that reduce the entry and exit, and therefore prevent industries from restructuring, limit the development of successful firms, and slow down productivity growth (Baily et al., 1992; Klapper et al., 2006; Bartelsman et al., 2009). Du and Girma (2010) show, in the case of China, that corruption does represent such an impediment. Political connections can help firms to survive longer and secure a market share regardless of their productivity performance, while politically-neutral firms enjoy faster productivity improvements.

One could however argue that corrupt officials tax new firms at entry in an efficient way so as to maximise rent capture, and thus deter inefficient firms' entry. In this instance, the existence of corrupt practices can be comparable to competitive auctions for allocating licenses, in which the highest bidder (offering the highest bribes) is the most efficient. Then, corruption might also serve as a screening mechanism for efficient projects (Beck & Maher 1986).

By distorting competition, and the entry and exit of firms in particular, corruption affects industry-level productivity growth. The real aggregate effect depends on the distribution of entering and exiting firms in terms of their market share, the amount of bribes paid, and associated firm-level productivity growth.

The "intra-plant", "market-share-reallocation" and "entry and exit of firms" components occur simultaneously to jointly explain industry labour productivity growth. Each of these drivers may be impacted negatively and/or positively by corruption payments, thus explaining the coexistence of the grease and sand-the-wheel effects. In addition, they may coexist through the same driver, but for different groups of plants, according to the size of their corruption payments.

Discussing the different effects that corruption could have on individual firms, but also on entries, exits, and market share reallocation shows that the results are mostly an empirical question. So as to uncover the real aggregate effect of corruption on productivity growth, we propose to account for the contribution of different corruption-classes of plants to aggregate LPG, while disentangling the effects of intra-plant productivity growth, market share reallocation, and net entry effects.

METHODOLOGY

We decompose productivity growth following Foster et al. (2001), and disentangle its three core productivity drivers: intra-plant productivity growth of incumbents (within effect); market share reallocation among incumbents; and the effect of net entry and/or exit of plants. The decomposition method is written thus:

$$\Delta aggLP_{it,t-\tau} = \sum_{i\in S}\theta_{it-\tau}\Delta lp_{it} + \sum_{i\in S}\Delta\theta_{it}\left(lp_{it-\tau} - LP_{it-\tau}\right) + \sum_{i\in S}\Delta\theta_{it}\Delta lp_{it} + \sum_{i\in N}\theta_{it}\left(lp_{it} - LP_{it-\tau}\right) - \sum_{i\in X}\theta_{it-\tau}\left(lp_{it-\tau} - LP_{it-\tau}\right) \quad (1)$$

Where $\Delta aggLP$ is the industrial aggregate labor productivity growth, lp is plants' labour productivity, LP is average lp, i the subscript for plants, S designates the group of incumbents, N the group of entrants, X the group exiting, t the end year, and $t-\tau$ the start year. θ is the plant output market share. Then, we decompose further in order to analyze the contributions to productivity growth and to its constituents, by different cohorts of plants, grouped according to the relative size of their bribe payments rate (percentage of value added, VA). We consider three groups of plants paying: no bribes (NC); a low level of bribes (LC); a high level of bribes (HC). The second cut-off point that distinguishes between plants paying low and high level of bribes is estimated as the turning point of the curvilinear relationship between labour productivity growth and bribe payments using the results of the two regressions presented in Appendix 1. The relation (1) is simply rewritten as:

$$\Delta aggLP_{it,t-\tau} = \sum_{i\in SNC,SLC,SHC}\theta_{it-\tau}\Delta lp_{it} + \sum_{i\in SNC,SLC,SHC}\Delta\theta_{it}\left(lp_{it-\tau} - LP_{it-\tau}\right) + \sum_{i\in SNC,SLC,SHC}\Delta\theta_{it}\Delta lp_{it} + \sum_{i\in ENC,ELC,EHC}\theta_{it}\left(lp_{it} - LP_{it-\tau}\right) - \sum_{i\in XNC,XLC,XHC}\theta_{it-\tau}\left(lp_{it-\tau} - LP_{it-\tau}\right) \quad (2)$$

It determines the contribution of different corruption classes of firms to productivity growth for each of the different drivers of productivity growth. The first term, the intra-plant component, represents the contribution of incumbents' individual increase in productivity. The second term characterises the reallocation of output market share between plants with different levels of productivity. This term is positive if they are reallocated from low to high productivity plants. The third term characterises the reallocation of output market share between plants with different productivity growth rates. This term is positive if they are reallocated from low to high productivity growth rate plants. The last two terms correspond to the net effect of plants entry and exit. For example, it would be positive if incoming plants had higher productivity levels, and/or displayed a higher market share than those who are leaving.

DATA DESCRIPTION AND MOTIVATION

We use a unique plant-level data set on Indonesian manufacturing, the *Statistik Industri*, which is a census of all Indonesian industrial plants with 20 employees or more, over the period 1975-1995. It originates from an annual survey conducted by the Indonesian bureau of public statistics (BPS). The questionnaire, administered at the national level, is anonymous and detailed, covering establishments' characteristics, output, input use, expenditures, ownership, and so forth. Plants are tracked over the years by identification numbers, entrants are identified in the dataset through their new identification number, and those exiting are identified by their identification number definitively disappearing from the dataset.

We compute plant labour productivity as output per worker. Market share is calculated as the share of the plant in total manufacturing output. We use two alternative proxy-measures of plant-level corruption payment, payments of bribes and payments of indirect taxes, and we describe them below.

In the early eighties, Indonesia was among the most corrupt countries in the world (Mauro, 1995). Corruption served the former president Suharto as an instrument for maintaining his power, by rewarding and rendering his accomplices a large part of society (Robertson-Snape, 1999). It was also a source of personal enrichment. Bribes were collected through a system of cronies, and through official charity foundations, the *yayasans*, that received the firms' bribe payments and used them to finance companies controlled by Suharto, his family and his allies (McLeod, 2000; Robertson-Snape, 1999). Schwarz (2004: 40–41) explains that: "as the New Order progressed, so did the art of patronage. Revenues collected from Suharto's close business associates in sectors such as oil, construction and agro-business—often washed through non-profit foundations—have enabled Suharto to expand the distribution of patronage to potential critics in political, religious and social circles."

The *yayasans* financed social, religious, educational, or humanitarian activities and programs, but according to *The Economist* (1993), "in addition to their charitable work, yayasans act as giant slush funds, dispensing patronage and cornering lucrative contracts." Suharto and his relatives control the *yayasans* and could manipulate the deployment of their funds. This was made easier as the *yayasans* were not audited and did not pay tax.

Companies disclosed their donations to the *yayasans* as gifts and charity payments, which clearly represented rewards for favors, such as preferential tariffs, import quotas, and tax benefits obtained from government agencies (Behrman & Deolalikar, 1989). Robison (1986) confirmed the role of *yayasans* in the corrupt system and gave numerous evidences of bribe payments, such as P.T. Bogasari, a large Indonesian flour mill for which 'the articles of association stipulated that, in effect, 26% of its profits be set aside for 'charitable' foundations including Mrs Suharto's Yayasan Harapan Kita and Kostrad's Yayasan Dharma Putra' (Robison, 1986: 232). McLeod (2000) and Henderson and Kuncoro (2006) explain that bureaucrats of central and local governments, set red tape and various taxes so as to force firms to pay bribes. In return, firms use bribes so as to avoid taxes, administrative delays, red tape, and harassment by civil servants. According to McLeod (2000: 24) "the [Indonesian] bureaucracy has proven adept at creating countless regulations that require some kind of bureaucratic action before private sector firms can carry out their normal business activities: the issue of licenses, approvals, certificates, permits and so on, … most people take it for granted that it will be necessary for them to offer some 'grease money' if they are not to be blocked by the bureaucracy in whatever they are trying to do." In the BPS questionnaire, in the "other expenses" section, one item is titled "gifts, charities, donations". As previously documented, this item likely indicates bribe payments, mostly channeled through charities (*yayasans*). Behrman and Deolalikar (1989) use this variable as a proxy for plant-level corruption. It is considered as relatively reliable, because the BPS survey is anonymous, with plants identified only by numbers. This proxy does not include other forms of bribery, such as commissions, contract shares, and option contracts that fall below or above market prices.

We use the percentage of gifts, charities and donations in plant value added (VA) as a measure of the plant's level of corruption, controlling for plant size. We use this constructed variable to define different corruption-classes of plants.

As an alternative to "gifts, charities and donations", we use "payments of indirect taxes" (percentage of VA). In the BPS questionnaire, the item 'indirect taxes' encompasses sales taxes, establishment licenses, building and land taxes, annual motor vehicle taxes (SWP3D), import duties, and custom fees, but not income and personal taxes (BPS 1996). Henderson and Kuncoro (2006) explain that Indonesian governments and bureaucrats extort rent from firms through indirect taxation, such as import duties, licenses, and levy fees (see also McLeod, 2000). In return, firms could expect real privileges, such as exclusive import licenses, tax exemptions, public contracts, and rights to exploit natural resources. In this context, payments made to obtain various licenses represent another proxy for corruption, because firms without connections lack any access to these various licenses.

Kuncoro (2004) shows empirically that Indonesian firms' tax payments significantly explain the amount of bribes paid and that both variables have the same determinants, namely, firm profitability and civil servants' willingness to extract bribes. Plant's bribes and indirect tax payments are significantly and positively correlated, and Kuncoro (2004) considers that they are complementary vectors of rent extraction. However, they remain different in several ways and are likely to impact differently on the drivers of productivity growth, although it is difficult to predict the differences in these effects.

RESULTS

Summary statistics

Tables 1a and 1b present summary statistics for our data. Our three categories of plants are defined according to the level of their bribe payments: the NC category encompasses plants paying no bribes; the LC category encompasses plants paying bribes lower than 0.1209% of their value added, and the HC category corresponds to plants paying bribes for more than 0.1209% of their value added. As an alternative, and for robustness, we also define the three categories in terms of indirect tax payments as percentage of value added, using the turning point 0.4469% as the threshold between LC and HC categories[3].

Low corruption (LC) plants have the highest average productivity growth, while high corruption (HC) plants display the lowest (and negative) productivity growth rates. HC plants have the highest average output market share, bribe rate, bribe market share, indirect tax payment rate, and indirect tax payment market share.

Table 1c presents aggregate data on output, bribes and indirect tax market share, averaged over the period 1976-1994, for the three categories of plants. The ratio of bribe (indirect tax) market share over output market share is 40.909 (8.833) for the HC category and 1.315 (0.800) for the LC category. This reveals that plants from the HC category spend much more on corruption per unit of output than plants from the LC category do.

[3] These threshold values have been estimated as exposed in Appendix 1.

Table 1a Descriptive statistics by corruption class (bribes) - Plant-level observations.

Labour productivity	NC	LC	HC
Observations	121,221	169,360	1,685
Mean	6.85	6.92	5.78
Standard deviation	1.42	1.21	1.82
Labour productivity growth	NC	LC	HC
Observations	121,221	169,360	1,685
Mean	2.0%	5.1%	-84.2%
Standard deviation	66.3%	75.6%	145.7%
Output market share	NC	LC	HC
Observations	121,221	169,360	1,685
Mean	.006%	.007%	.008%
Standard deviation	.034%	.054%	.060%

Bribe rate (% VA)	NC	LC	HC
Observations	121,221	169,360	1,685
Mean	0	.009	0.57
Standard deviation	0	.014	4.634
Bribe market share	NC	LC	HC
Observations	121,221	169,360	1,685
Mean	0	.008%	.344%
Standard deviation	0	.192%	.275%

Note: NC means 'non corrupted plant', LC is 'low corruption', HC is 'high corruption' and VA is value added. Corruption threshold between LC and HC is estimated as the turning point in regression 1 and is 0.1209

Table 1b. Descriptive statistics by corruption class (indirect taxes) - Plant-level observations.

Labour productivity	NC	LC	HC
Observations	102,270	186,272	3,724
Mean	6.85	6.90	7.03
Standard deviation	1.44	1.22	1.76
Labour productivity growth	NC	LC	HC
Observations	102,270	186,272	3,724
Mean	1.73%	5.17%	-47.74%
Standard deviation	63.76%	75.55%	127.33%
Output market share	NC	LC	HC
Observations	102,270	186,272	3,724
Mean	.007%	.006%	.034%
Standard deviation	0.036%	0.046%	0.166%

Indirect tax rate (% VA)	NC	LC	HC
Observations	102,270	186,272	3,724
Mean	0	0.04	15.83
Standard deviation	0	0.07	856.57
Indirect tax market share	NC	LC	HC
Observations	102,270	186,272	3,724
Mean	0	.005%	.302%
Standard deviation	0	0.126%	1.685%

Note: NC means 'non corrupted plant', LC is 'low corruption', HC is 'high corruption' and VA is value added. Corruption threshold between LC and HC is estimated as the turning point in regression 2 and is 0.4469

Table 1c. 1976-1994 yearly average total of output, bribe and indirect tax market shares, by bribe and indirect tax rate category.

Corruption categories	Output market share (1)	Bribe market share (2)	Ratio (2)/(1)
NC	41.12%	0%	
LC (<0.1209)	55.5%	73.2%	1.32
HC (>0.1209)	0.7%	26.8%	40.40
Indirect tax categories	Output market share (1)	Indirect taxes market share (2)	Ratio (2)/(1)
NC	38.6%	0%	
LC (<0.4469)	52.1%	41.7%	0.80
HC (>0.4469)	6.6%	58.3%	8.88

Results of the aggregate labor productivity decomposition

Table 2 presents the results on the determinants of industry productivity growth (cf. relation (2)). The first line of results refers to the overall contribution of each category of firm to each component of industry productivity growth, based on the firms' productivity and total market share. The second line expresses the same results normalised to one unit of output market share, so as to compare the contribution of each type of firm to components of industry productivity growth regardless of their size and number.

Intra-plant effect

We show that the overall intra-plant labour productivity growth is negative (-8.02%), with strong and negative contributions from both the non-corrupt (NC) (-4.42%) and low corruption (LC) (-3.12%) plants, and a small negative contribution by the high corruption (HC) plants (-0.47%), to a certain extent reflecting the distribution of output market share among the three categories (41.12% for NC; 55.5% for LC; 0.7% for HC). Nevertheless, the NC category weighs negatively and more strongly on the aggregate than the LC plants despite a lower total market share for the former, hinting at the existence of some form of 'grease-the-wheel' effect for LC plants.

Table 2. Decomposition of industry labour productivity growth (aggregation with output shares), by level of bribe payments, 1976-94.

Total	NC	LC	HC	
Market share reallocation (1)				**Intra-plant LPG (4)**
-17.91%	-4.42%	-3.12%	-0.47%	
	-0.11%	*-0.06%*	*-0.72%*	
Covariance term (2)				**Net entry effect (5)**
21.65%	7.64%	4.07%	0.05%	
	0.19%	*0.073%*	*0.070%*	
Total market share reallocation (3) = (1) + (2)				**Total LPG rates = (3) + (4) + (5)**
3.74%	0.90%	7.18%	-0.60%	
	0.02%	*0.13%*	*-0.91%*	

Note: The first term is the category's contribution to industry LPG. The second term below (in italics) is this contribution normalized (per unit percentage of aggregate output market share).

Table 3. Decomposition of industry labour productivity growth (aggregation with output shares), by level of indirect tax payments, 1976-94.

NC	LC	HC	Total	NC	LC	HC	Total
Market share reallocation (1)				**Intra-plant LPG (4)**			
-9.84%	-5.68%	-2.39%	-17.91%	-4.07%	-2.32%	-1.63%	-8.02%
-0.26%	*-0.11%*	*-0.36%*		*-0.11%*	*-0.04%*	*-0.25%*	
Covariance term (2)				**Net entry effect (5)**			
7.14%	13.22%	1.29%	21.65%	7.46%	4.06%	0.23%	11.76%
0.19%	*0.25%*	*0.20%*		*0.20%*	*0.08%*	*0.03%*	
Total market share reallocation (3) = (1) + (2)				**Total LPG rates (6) = (3) + (4) + (5)**			
-2.70%	7.54%	-1.10%	3.74%	0.69%	9.28%	-2.49%	7.48%
-0.07%	*0.14%*	*-0.17%*		*0.02%*	*0.18%*	*-0.38%*	

Note: The first term is the category's contribution to industry LPG. The second term below (in italics) is this contribution normalized (per unit percentage of aggregate output market share).

Indeed, once normalized, the LC category presents the smallest negative contribution (-0.06%), while the HC category displays the highest negative contribution (-0.72%), and the NC plant category is in between (-0.11%). From Table 3, we observe that the results exhibit similar patterns when we measure corruption with “payments of indirect taxes” instead of “bribing”.

Our results illustrate the diminishing returns to bribes as well as the coexistence of the grease and sand-the-wheel effects for different levels of corruption payments.

Market share reallocation effect

The results indicate that all the (constant-productivity)-market-reallocation components are negative with respective values of -10.1%, -7.4% and -0.42% for the NC, LC and HC classes, and -17.91% for the whole sample. The normalised contributions to the LPG is the weakest for the LC class (-0.13%), the worst for the HC class (-0.63%) and in between for the NC class (-0.25%). We can draw the same conclusion from the results with ‘payments of indirect taxes’ (Table 3). As in the case of the intra-plant component of the LPG, results on the normalized contributions suggest the beneficial effect of moderate bribe payments and the detrimental effect of high payments. A low level of corruption payment reduces the loss of market share from the more productive plants (grease-the-wheel), whereas a high level of corruption payment tends to hasten this loss (sand-the-wheel).

The covariance term is positive for each class. This means that market share is reallocated to plants with a higher productivity growth rate, and the effect is particularly important in the LC category (13.63%) whereas it is close to zero for the HC category (0.25%). In terms of percentage of output market share, these contributions are always higher for bribing categories (0.25% for LC and 0.37% for HC on Table 2; 0.25% for LC and 0.20% for HC on Table 3) than for the NC class (0.19% on Tables 2 and 3). This suggests an efficient effect of corruption as, within corrupted categories, it reshuffles the market share to plants with a stronger LPG.

As the two components of market share reallocation are of opposite signs, it has also to be examined as a total (3), i.e. as the sum of the two previous components (1) and (2). It turns out to be globally positive (+3.74%), but only attributable to the positive contribution from the LC class (6.23% and 7.54% in Tables 2 and 3 respectively). The two other classes exhibit negative contributions: for those two classes, market share is reallocated to higher productivity growth firms, but those firms have a lower productivity level, which drags down their contribution to the LPG. In terms of normalised contributions to the LPG, the LC class contributes +0.11% according to Table 2 (0.14 on Table 3) whereas the HC class has the lowest contribution (-0.26% and -0.17% on Tables 2 and 3 respectively). Those results evidence an aggregate grease-the-wheel effect for LC plants and a sand-the-wheel effect for HC plants, and thus the diminishing returns of individual bribes.

Firm entry and exit effect

The total net-entry component is globally positive (11.76%) and mainly due to the large contribution of the NC plants (respectively 7.64% and 7.46% in Tables 2 and 3) and to a lesser extent, by the LC plants (respectively 4.07% and 4.06%) and HC plants (respectively 0.05% and 0.23%). The NC class also has the strongest normalised contribution (respectively 0.19% and 0.20%) whereas it declines when we consider higher levels of corruption payments: 0.073% for LC, and 0.070% for HC in the case of bribes; 0.08% for LC and 0.03% for HC in the case of indirect tax payments. This suggests that corruption is sanding the wheels of industry productivity gains in that area.

Overall effect

Considering the total LGP, the core interesting result is that the LC plants contribute positively (7.18% and 9.28% on Tables 2 and 3) and represent the bulk of the total LPG (7.48%). They contribute much more than the NC plants (0.9% and 0.69%) to the LPG in spite of representing a similar output market share, confirming the grease-the-wheel hypothesis. However, we also find that the HC plants contribute systematically negatively (-0.6% and -2.49%), confirming that after a certain threshold, bribes sand-the-wheels. We also show that these results are robust to different plant-level proxy-variables of corruption.

DISCUSSION AND POLICY RECOMMENDATIONS

Overall, our results show that once we account for firms' heterogeneity, both in terms of their size and the size of their bribes, corruption has differentiated effects on the three components of aggregate LPG, being either detrimental or bringing some benefits in a second best perspective (grease-the-wheel effect). They evidence in particular the diminishing returns to individual bribes and the coexistence of the grease and sand-the-wheel effects among and within each component of the aggregate LPG. These results are important for the design of anti-corruption policies and institutional reforms aiming ultimately at favouring aggregate LPG.

Intra-plant productivity

Our results on the effect of corruption on the intra-plant component of aggregate LPG, illustrate the diminishing returns of bribes. Bribing moderately is more beneficial that not bribing at all, or bribing a lot. Indeed, a moderate level of bribes can help in overcoming red tape and bureaucratic inefficiencies and accessing scarce resources that are necessary, thus facilitating investment, while encouraging relatively more risk-taking thanks to the protection procured by bribes. For example, a significant outcome of the Indonesian corruption system is the distortions in the distribution and price of banking credit (Goeltom, 1995). However, above a certain threshold of bribes (percentage of VA), the grease-the-wheel effect is more than compensated for by a sand-the-wheel effect, and a high level of corruption is detrimental to intra-plant productivity growth, due to its negative effects on investment, innovation and within-firms allocation of inputs. High levels of bribes indeed reflect the racket and rent extortion exerted by the corrupt elites and bureaucracy. Bureaucrats developed red tape so as to extort bribes from firms willing to pay in order to speed up delivery of licenses to operate, approvals, certificates, permits and so on (McLeod, 2000). Above the turning point, the return on bribes is thus decreasing and eventually negative as well.

Over the period 1975-1995, in the Indonesian manufacturing sector, investment mainly occured in machinery and equipment, explaining most of the rapid output growth in that sector (Timmer, 1999). Van der Eng (2010) confirmed the large rate of capital accumulation in Indonesia since the early 1980s, and suggests that this is the main vector of technological change. One may assume that high levels of corruption divert funds away from productive investment for the high-corruption group. This would explain why the latter have a strong negative contribution to the intra-plant labour productivity growth per percentage of output market share.

There is a second explanation for this result. Plants that enjoyed an important market share in the past, but declining productivity, have maintained their market position by offering bribes in exchange for favours. On the other hand, plants with growing (within) productivity but paying low bribes, are constrained by red tape and keep a small market share.

Market share reallocation

The results indicate that the overall 'market share reallocation' component is positive, meaning that in terms of productivity, market share is redistributed from high level and low growth, to low level, high growth plants. This is similar to a competitive mechanism, where plants enter with a lower level of productivity due to their smaller size and a certain liability of newness (Baily et al., 1992; Hannan, 2005), and then, increase productivity and market share as they gain market knowledge and innovate. However, this virtuous competitive mechanism is only at play for the category of LC firms, as evidenced by the further decomposition of the 'market share reallocation component' per category of bribe payers. The net contribution appears positive for the LC category whereas it is negative for the NC and HC categories. This result suggests that for firms in the LC category, corruption does act as grease money, helping lower productivity firms to gain market knowledge via a speeding up of networking for example, supporting and enhancing their investments towards innovation, which helps them gain market share. The results for the NC category suggests a sand-the-wheel effect, first, as market share is reallocated from high to low level productivity firms, due to market distortions, deficient regulations and the corrupt system. Second, as the NC plants have a lower access to resources than the LC and HC plants do, they thus fail to boost their LPG as much as the former and beyond that is the losses of market share reallocation towards lower productivity level plants.

The negative contribution of the HC category suggests that market share is being reallocated to lower productivity plants, regardless of the performance in terms of intra-plant productivity growth, because of high bribe payments. In that respect, bribe money benefits individual firms in that it increases their market share without having to increase productivity much (or at all). However, we see that the effect at the industry level is clearly sanding the wheels of growth.

Firm entry and exit

Our results reveal that the process of creative destruction is higher in the NC class. Corruption does not seem to hamper the entry of a certain number of non-corrupted and higher productivity plants, while the least productive exit. The weaker components of the HC and LC classes suggest the likely effect of product market distortions induced by corruption, such as granting exclusive licenses to bribing and unproductive new plants, and the less likely exit of lower productivity plants. In their strategy of rent generation and extraction, corrupt Indonesian officials introduced market distortions and monopoly positions in the form of exclusive licenses for the imports of goods such as tobacco, cars, oil and shoes, or for the extraction of natural resources, such as timber and gold (Robertson-Snape, 1999). For those two categories, corruption payments have clearly decreasing (eventually negative) returns as they distort the efficient firm turnover adjustment mechanisms. This suggests that corruption is sanding the wheel of industry productivity gains in this case.

We note that the method employed for grouping plants into the three categories NC, LC and HC, differs when we use bribes or indirect taxes, as it leads to different distributions of output share. Table 1c shows that using bribes, the HC category (all plants with non-zero payments above the median) gathers plants with a cumulated market share of 0.7% of the total. Using indirect taxes, the cumulated market share of the HC category jump to 6.6%. This may explain why the contributions of the HC category to the components of productivity growth are systematically higher when the decomposition is based on indirect taxes rather than bribes payments. However, the normalized contribution of the HC plants remains negative.

Using a large database of Indonesian manufacturing firms over a long period, in order to analyze the effect of corruption on the different drivers of productivity growth, some firm-specific, some resulting from industrial firm dynamics, we proceed to the decomposition of industrial labour productivity growth while contrasting and comparing the contributions of no, low and high corruption firms. Our results evidence the coexistence of grease and sand-the-wheel effects. The bulk of industrial productivity gains stems from a process of market share reallocation, first from those exiting the market to new entrants in the non-corrupted sector, evidencing a sand-the-wheel effect of corruption; second among incumbents firms in the low corruption sector, pointing at a grease-the-wheel effect for this mechanism. The effect of intra-plant productivity growth is overall negative, whereas this effect is dampened for low corruption plants, thus suggesting a grease-the-wheel effect for this last category.

The results thus also evidence the decreasing returns to bribe payments for the average firm.

Up to a certain threshold, corruption greases the wheels of a firm's productivity growth by allowing access to productive resources and bureaucratic services, but sands them after the turning point, either because access has become over-priced, or because the firm has not the capability to increase its productivity and only pays to stay in the market.

Corruption is widespread and often considered as detrimental to the economy (Mauro, 1995; Wei, 2000), and designing public or corporate policy to combat it requires us to clearly understand its nature, its mechanisms and its consequences (Dal Bo & Rossi, 2007). This is the reason why the academic literature has shed light on the debate as to whether bribes are "greasing the wheel" of commerce (Leff, 1964; Lui, 1985) or "sanding" it (Mauro, 1995; Rose-Ackerman, 1999; Shleifer & Vishny, 1993). The first view assumes that bribing bureaucrats enables firms to avoid excessive taxations and to overcome inefficient and overwhelming administrative rules and procedures, and thus to restore their performance and productivity. The second view replies that the excessive and inefficient "red tape" is not exogenous, but endogenous and a consequence of corruption. Corrupt bureaucrats set new rules and taxes and manipulate the existing ones in order to extort bribes from firms (Shleifer & Vishny, 1993) and they eventually customize the red tape according to firms' ability to pay (Henderson & Kuncoro, 2006). In addition, the regulatory capture literature (Stigler, 1971; Peltzman, 1976; Hellman et al., 2003) has explained that firms pay bribes in order to influence and capture the public decision making process, so as to obtain new rules that are beneficial to them and harmful to their competitors.

If the first view is proven correct, anti-corruption policies should first of all focus on reforming and rationalizing the red tape at the institutional level, then try to eradicate corrupt practices. If, on the contrary, the second view is the relevant one, the core issue would be correcting for the incentives and conditions that lead to corruption, and to the manipulation of the regulations and tax system for the purpose of extorting bribes.

We contribute to this debate, first by reconciling these two views and showing that they can coexist. Second, the methodology that we developed enables us to identify how corruption impacts the different drivers of productivity growth, thereby indicating modalities and objectives for the design of anti-corruption policies and institutional reforms. Our results for Indonesia, showing that corruption always 'sands-the-wheel' of a firm's entry-exit mechanism, one of the main contributors to the aggregate LPG, suggests that reform should primarily aim at correcting the incentives and conditions leading to bribing and rent extortion in the regulations for entry. It means in particular eliminating informal rules and beliefs according to which firms would have to pay a user fee, in the form of bribes, in order to get access to efficient bureaucratic services, such as business permit delivery. This can be obtained by rationalizing the administrative layers and the number of desks that firms must go through. Bureaucratic incentives to extort bribes can be reduced by raising transparency in the administrative procedures, the accountability of civil servants (using the Internet for example), public salaries, and the threat of sanctions.

Evidencing that a low level of corruption (individual bribes) 'grease-the-wheel' of the intra-plant as well as the market share reallocation between incumbents components, underlines the necessity to cut and simplify the regulations and administrative procedures that dampen investment, innovation, competition and market adjustments. However, our results show that high levels of bribes "sand-the-wheel" of these two mechanisms, meaning that measures for reducing bureaucrats' incentives to extort bribes, are also justified, but targeting specifically "grand corruption". Such corruption involves large bribe payments, the economic and political elites, and occurs particularly in large projects in the energy, mining and construction sectors.

These policy-recommendations are in line with Hamilton-Hart (2001), who underlines the incompleteness of Indonesia's policy reforms that primarily target "the role of information and external constraints", but should rather "build more rationalized, internally disciplined government organizations" (p. 77). This incompleteness and ineffectiveness of anti-corruption policies continues today, as evidenced by Butt (2011).

REFERENCES

Aghion, P., Bloom, N., Blundell, R., Griffith, R., & Howitt, P., 2005. "Competition and innovation: An inverted U relationship". *Quarterly Journal of Economics*, 120(2): 701–728.

Anand, V., Ashforth, B. E., & Joshi, M., 2005. "Business as usual: The acceptance and perpetuation of corruption in organizations". *Academy of Management Executive*, 19(4): 9–23.

Arnold, J., Nicoletti, G., & Scarpetta, S., 2008. "*Regulation, allocative efficiency and productivity in OECD countries: Industry and firm-level evidence*". Working Paper 616. OECD Economic Department.

Alesina, A., Ardagna, S., Nicoletti, G., & Schiantarelli, F., 2005. "Regulation and investment". *Journal of the European Economic Association,* 3(4): 791–825.

Bailey, D.H., 1966. "The effects of corruption in a developing nation". *Western Political Quarterly* 19(4): 719–732. Reprint in: Heidenheimer A.-J., Johnston M. & LeVine V.-T. (Eds.). 1989. *Political corruption: A handbook*: 934–952. Oxford: Transaction Books.

Baily, M.N., Hulten, C., & Campbell, D., 1992. "Productivity dynamics in manufacturing plants". *Brookings Papers on Economic Activity, Microeconomics*: 187–249

Bardhan, P., 1997. "Corruption and Development: A Review of Issues". *Journal of Economic Literature,* 35: 1320-1346.

Bartelsman, E., Haltiwanger, G., & Scarpetta, S., 2009. "Cross-country differences in productivity: The role of allocation and selection". *NBER Working Paper* 15490.

Basri, M.C., 2001. "*The Political economy of manufacturing protection in Indonesia, 1975–1995"*. Unpublished doctoral thesis, Australian National University, Canberra.

Baumol, W., 1990. "Entrepreneurship: productive, unproductive and destructive". *Journal of Political Economy,* 98: 893–921.

Beck, P.- J., & Maher, M.-W., 1986. "A comparison of bribery and bidding in thin markets". *Economics Letters* 20(1): 1–5.

Behrman, J.R., & Deolalikar, A.-B., 1989. "Of the fittest? Duration of survival of manufacturing establishments in a developing country". *Journal of Industrial Economics,* 38(2): 215–226.

Biro Pusat Statistik., 1996. Annual Manufacturing Survey Questionnaire, 1996. Available at: http://www.rand.org/labour/bps/statistik_industri.html, accessed Feb. 07, 2013.

Bjørnskov, C., 2003. "Corruption and social capital". *Working Paper* 03-13. Department of Economics, Aarhus School of Business.

Bjørnskov, C., & Méon, P.-G., 2010. "Productivity of trust". *Working Paper CEB* 10-042. Brussels University.

Butt, S., 2011. "Anti-corruption reform in Indonesia: an obituary?" *Bulletin of Indonesian Economic Studies*, 47(3), 381-394.

Dal Bó, E., & Rossi, M.-A., 2007. "Corruption and inefficiency: Theory and evidence from electric utilities". *Journal of Public Economics,* 91: 939–962.

Dearmon, J., & Grier, R., 2009. "Trust and development". *Journal of Economic Behavior and Organization,* 71: 210–220.

De Rosa, D., Gooroochurn, N., & Görg, H., 2010. "Corruption and Productivity Firm-level Evidence from the BEEPS Survey". *World Bank Working Paper* 5348.

Dixit, A. 1989., "Entry and exit decisions under uncertainty". *Journal of Political Economy,* 97(3): 620–638.

Djankov, S., La Porta, R., Lopez-de-Silanes, F., & Shleifer, A., 2002. "The regulation of entry". *Quarterly Journal of Economics,* 117(1): 1–35.

Dreher, A., & Gassebner, M., 2013. "Greasing the Wheels? The Impact of Regulations and Corruption on Firm Entry". *Public Choice*, forthcoming.

Du, J., & Girma, S., 2010. "Red Capitalists: Political Connections and Firm Performance in China". *Kyklos,* 63(4): 530–545.

The Economist, 1993. Now for the hard part, April 17, Vol. 327, issue 7807.

Foster, L., Haltiwanger, J., & Krizan, C., 2001. “Aggregate productivity growth: Lessons from microeconomic evidence”. In *New developments in productivity analysis*: 303 – 372. Chicago: University of Chicago Press.

Goeltom, M., 1995. “Indonesia’s financial liberalization: An empirical analysis of 1981-88 panel data”. *ISEAS Current Economic Affairs Series* ASEAN Economic Research Unit, Institute of Southeast Asian Studies.Hamilton-Hart, N. 2001. “Anti-corruption strategies in Indonesia”. *Bulletin of Indonesian Economic Studies*, *37*(1): 65-82.

Hannan, M.T. 2005. “Ecologies of organizations: diversity and identity”. *Journal of Economic Perspectives*, 19(1): 51-70.

Hellman, J., Jones, G., & Kaufmann, D. 2003. “Seize the state, seize the day: state capture and influence in transition economies”. *Journal of Comparative Economics*, 31(4): 751-777.

Henderson, J.V., & Kuncoro, A., 2006. “Corruption in Indonesia. Unpublished manuscript.

Kaufmann, D., & Wei, S.J. 1999. Does grease money speed up the wheels of commerce?” *NBER Working Paper* 7093.

Kingston, C., 2005. “*Social capital and corruption: Theory, and evidence from India*”. Mimeo.

Klapper, L., Laeven, L., & Rajan, R., 2006. “Entry regulation as a barrier to entrepreneurship”. *Journal of Financial Economics,* 82: 591–629.

Knack, S., & Keefer, P., 1997. “Does social capital have an economic pay-off? A cross-country investigation”. *Quarterly Journal of Economics,* 112: 1251–1288.

Kuncoro, A. 2004., “Bribery in Indonesia: Some evidences from micro-level data”. *Bulletin of Indonesian Economic Studies,* 40(3): 329–354.

Kwon, H., Narita, F., & Narita, M., 2009. “Resource Reallocation and Zombie Lending in Japan in the 90’s”. *RIETI Working Paper* 09052. Nihon University.

Lambson, V., 1991. “Industry evolution with sunk costs and uncertain market conditions”. *International Journal of Industrial Organization,* 9: 171–196.

Leff, N. 1964. “Economic development through bureaucratic corruption”. *The American Behavioural Scientist*, 8(2): 8-14.

Lui, F. 1985. “An equilibrium queuing model of bribery”. *Journal of Political Economy,* 93(4): 760-781.

Mauro, P., 1995. “Corruption and growth”. *Quarterly Journal of Economics,* 110(3): 681–712.

McLeod, R., 2000. “Soeharto Indonesia: A better class of corruption”. *The Indonesian Quarterly*, 28(1): 6–27.

Meschi, P.-X., 2009. “Government corruption and foreign stakes in international joint ventures in emerging economies”. *Asia Pacific Journal of Management*, 26(2): 241–261.

Méon, P.-G., & Sekkat, K., 2005. ”Does corruption grease or sand-the-wheels of growth? ” *Public Choice*, 122(1-2): 69–97.

Méon, P.-G., & Weill, L., 2010. ”Is corruption an efficient grease? ” *World Development,* 38(3): 244–259.

Murphy, K.M., Shleifer, A., & Vishny, R.-W., 1991. ”The allocation of talent: implication for growth”. *Quarterly Journal of Economics* 106(2): 503–530.

Park, S.H., & Luo, Y., 2001. ”Guanxi and organizational dynamics: Organizational networking in Chinese firms”. *Strategic Management Journal*, 22: 455–477.

Peng, M.W., & Luo, Y., 2000. ”Managerial ties and firm performance in a transition economy: The nature of a micro-macro link”. *Academy of Management Journal*, 43: 486–501.

Peltzman, S. 1976. “Towards a more general theory of regulation”. *Journal of Law and Economics*, 19(2): 211-240.

Rajan, R.G. & Zingales, L. 1998. “Financial Dependence and Growth”. *American Economic*

Review, 88(3): 559-586.

Restuccia, D., & Rogerson, R., 2008. ”Policy distortions and aggregate productivity with heterogeneous establishments”. *Review of Economic Dynamics,* 11(4): 707–720.

Roberts, M.R., & Tybout, J.R. (Eds.), 1996. *Industrial evolution in developing countries: Micro patterns of turnover, productivity and market structures*. New York: Oxford University Press.

Robertson-Snape, F., 1999. ”Corruption, collusion and nepotism in Indonesia”. *Third World Quarterly,* 20(3): 589-602.

Robison, R., 1986. *Indonesia: The rise of capital*. London: Allen and Unwin.

Rock, M., & Bonnett, H., 2004. ”The comparative politics of corruption: Accounting for the East Asian paradox in empirical studies of corruption, growth and investment”. *World Development,* 32(6): 999–1017.

Rosa, J.-J., & Pérard, E., 2010. ”When to privatize? When to nationalize? A competition for ownership approach”. *Kyklos,* 63(1): 110–132.

Rose-Ackermam, S., 1999. *Corruption and government: Causes, consequences and reform*. New York: Cambridge University Press.

Schwarz, A., 2004. *A nation in waiting: Indonesia's search for stability*. Singapore: Talisman Publishing.

Shleifer. A., & Vishny, R.W. 1993. “Corruption”. *Quarterly Journal of Economics*, 108: 599-617.

Stigler, G.J. 1971. “The theory of economic regulation”. *The Bell Journal of Economics and Management Science*, 2(1): 3-21

Štulhofer, A., 2004. ”Perception of corruption and the erosion of social capital in Croatia 1995-2003”. *Politička misao,* 41(5): 74–86.

Timmer, M., 1999. ”Indonesia's ascent on the technology ladder: capital stock and total factor productivity in Indonesian manufacturing, 1975-95”. *Bulletin of Indonesian Economic Studies,* 35(1): 75–89.

Tybout, J.R., 2000. ”Manufacturing firms in developing countries: How well do they do, and why? ” *Journal of Economic Literature*, 38(1): 11–44.

Tybout, J.R., 1996. ”Heterogeneity and productivity growth: assessing the evidence”. In M.J. Roberts & J.R. Tybout (Eds.). *Industrial evolution in developing countries: Micro patterns of turnover, productivity, and market structure*: 43–72. New York: Oxford University Press.

Van der Eng, P., 2010. ”The sources of long-term economic growth in Indonesia, 1880-2007”. *Explorations in Economic History,* 47(3): 294–309.

Vial, V., & Hanoteau, J. 2010. “Corruption, manufacturing plant growth and the Asian paradox: Micro-level evidence from Indonesia”. *World Development,* 38(5): 693-705.

Wang, G., Jiang, X., Yuan, C.H., & Yi, Y-Q., 2013. ”Managerial ties and firm performance in an emerging economy: Tests of the mediating and moderating effects”. *Asia Pacific Journal of Management*, 30(2): 537–559.

Wei, S.-J., 2000. ”How taxing is corruption on international investors”. *Review of Economics and Statistics,* 82(1): 1–11.

Zhou, J.Q., & Peng, M. W., 2012. ”Does bribery help or hurt firm growth around the world? ” *Asia Pacific Journal of Management,* 29(4): 907-921.