

Cronyism and Competition in Indonesian Manufacturing Pre and Post Suharto[†]

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Abstract: How do state-business relationships shape competition? Using plant-level Indonesian manufacturing census data in which 269 firms with political connections to President Suharto are identified, this paper documents a pro-competitive effect of Suharto's fall on sectors in which his cronies had extensive business interests. While connected firms weathered the crisis well, their growth rates decelerated dramatically. By contrast, at the 5-digit sector level, greater crony presence during the Suharto era is associated with greater entry and exit, faster employment growth, and more re-allocation during the post Suharto period. Increased dynamism in these sectors, did not translate into significant accelerated output growth, reductions in markups and concentration rates, however, though the profit elasticity decreased significantly in sectors where connected firms had larger market shares pre-crisis. The results are robust to controlling for potential confounders, including changing credit conditions and sector-specific shocks.

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1. Introduction

How do state-business relationships shape competition? In spite of in-depth theoretical analysis of the relationship between corruption and competition (Shleifer and Vishny, 1993, 1994; Bliss and Di Tella, 1997; Ades and Di Tella, 1999; Acemoglu and Verdier, 2000) and a few studies on the economic consequences of political turnover (Londregan and Poole, 1990; Earle et al., 2013), evidence of the impact of crony capitalism on industry competitiveness and dynamics remain limited. Political connections have been shown to be highly valuable, (Fisman, 2001; Faccio, 2006; Ferguson and Voth, 2008) and associated with a range of anti-competitive practices including cheaper access to finance (Johnson and Mitton, 2003; Khwaja and Mian, 2005; Faccio et al., 2006), and privileged access to operating and import licenses conferring monopoly rents (Mobarraq and Purbasari, 2006; Rijkers et al., 2014). However, empirical testing of their impact on industry structure remains scant.

This paper examines the impact of political connections on industry structure in Indonesia using plant-level manufacturing census data from Indonesia in which 269 firms with connections to the Suharto family are identified. While we have plant-level data, the focus of the paper is on industry outcomes, as our main interest is in examining how state-business relationships shape industry structure. We examine how the importance of political connections varies with industry characteristics, and then assess the impact of political turnover on industry outcomes exploiting the fall of President Suharto as a quasi-natural experiment generating variation in the value of political connections to him. We assess impacts on concentration, markups, and firm dynamics, as these are important determinants of allocative efficiency and productivity growth (Nickell, 1996; Blundell et al., 1999; Aghion et al., 2005).

Indonesia provides a suitable environment for analyzing the effect of crony capitalism on industry structure. Suharto was a notoriously corrupt president, whose family is estimated to have amassed a total wealth of \$35 billion during his time in office.¹ His family's business interests were both extensive and highly diversified. Cronyism was rampant and it was well known that ingratiating one-self with the President's family was an important enabler of business success. Moreover, the fall of the Suharto regime in the wake of the financial crisis was largely unexpected. Last but not least, Indonesia has a high-quality plant-level dataset in which we identify firms with political connections to the Suharto regime, either by virtue of having family members as one of their owners, or by means of cultivated connections. The data span both the Suharto era, the crisis and its aftermath, and are thus well-suited to assess how reductions in the value of political connections due to political turnover impacted industry structure.

The main hypothesis assessed in this paper is that Suharto's fall had a pro-competitive impact on Indonesian manufacturing sector. If political turnover resulted in a reduction in anti-competitive practices

¹ http://www.slate.com/articles/news_and_politics/explainer/2004/03/how_did_suharto_steal_35_billion.html

conferring advantages to those directly connected with Suharto, one would anticipate greater competition and more vibrant firm dynamics, especially in those sectors where his cronies' business interests were most extensive. To assess this hypothesis we examine the impact of Suharto's fall on entry and exit rates, employment and output growth at the sector level, as well as competition measures. A crucial identifying assumption is thus that the collapse of the Suharto regime reduced the value of political connections and consequently state capture.² Empirically, the main challenge is to isolate the impact of Suharto's fall from potentially confounding changes due to inter alia the crisis, and other developments, including changing credit market conditions, and global demand shifts. To this end, we use a difference-in-difference strategy and control for industry and time fixed effects, and pre-crisis industry characteristics which absorb much of the variation that cannot be attributed to political connections alone. In our most restrictive models control for sector-time fixed effects and we assess how the difference between the pre- and post- Suharto performance of narrowly defined 5 digit industries within the same 3-digit industry grouping varies with the prevalence of political connections prior to Suharto's demise.

Although the number of politically connected firms we identify is relatively small (1-1.2 percent of the sample), they account for a substantial share of output (13-16 percent of total output). They are active in more productive, but less competitive and dynamic industries, and occupy leading positions in the industries in which they operate. Moreover, there is substantial variation in the importance of connected firms in the cross-section even within 3 digit industry groupings, which facilitates identification.

Our regression analysis reveals positive changes in industry structure and reallocation dynamics after the regime collapse in industries in which politically connected firms were dominant. Although their growth rates decelerated, the politically connected firms do not appear to have been especially adversely hit by Suharto's departure.³ In fact, they seemed to have been more successful in keeping up high levels of output than non-connected firms with similar levels of output at the eve of the crisis. Nonetheless, Suharto's fall did spark greater dynamism; we observe significant increases in entry, exit, and employment growth rates in industries with higher presence of politically connected firms during the Suharto era. This greater dynamism does not translate into significantly accelerated output growth, lower concentration rates and significantly markups, though we do find some evidence of more intense competition as profit elasticity declined significantly more rapidly in industries where connected firms accounted for a higher share of output during the Suharto era.

² The sharp decline in the stock valuation of firms with political connections to Suharto (Fisman, 2001) is consistent with this assumption. Similarly, the IMF restructuring program implemented in response to the crisis deliberately targeted some of the sectors in which state capture was rife.

³ This finding may in part reflect the fact that some of the connected firms we identify were "too big to fail". As explained in more detail below, the method we use to detect political connections is more likely to identify large firms with such connections (Mubarak and Purbasari, 2006).

Our study contributes to the several branches of literature. First, it complements existing literature on the importance of political connections (Faccio, 2006; Fisman, 2001; Ferguson and Voth, 2008; Mobarraq and Purbasari, 2006; Rijkers et al., 2014), by assessing which industry characteristics are associated with a greater importance of state-business relations. While previous studies have mostly focused on documenting anti-competitive practices, this study examines the impact of the existence of such practices on competition and firm dynamics. The comparative analysis of firm and *sector* performance helps assess the impact of cronyism on aggregate efficiency, and the spillovers of anti-competitive practices on non-connected firms.

Our paper also contributes to the growing literature on the economic consequences of political turnover. Though most of this literature has focused on macroeconomic outcomes, a few micro-economic studies are closely related to ours. Earle et al. (2013) examine the productivity consequences of the Orange Revolution in the Ukraine and show that firms in regions supportive of Viktor Yushchenko improved productivity much faster after his election than firms in regions that did not support him. Naido et al. (2014) demonstrate that Haitian importers who participated in coups benefitted from it in their aftermath by being able to charge higher prices for the goods they imported. Acemoglu et al. (2014) document how street protests in Egypt were associated with reduced stock valuation of firms connected to the prevailing regime relative to those connected to groups not in power, and interpret these findings as suggesting popular mobilization may help reduce rent seeking.

Although we cannot establish causation, our results are consistent with the hypothesis that cronyism undermines competition. Yet, they also serve as a reminder that political turnover per se does not suffice to undo the detrimental impacts of cronyism. Unless complementary reform efforts are undertaken, (the legacy of) perverted state-business relationship may continue to impede competition and growth. In spite of significant regulatory change, many of the anti-competitive practices instituted under Suharto have remained in place, which may help explain why his removal has had a relatively mild impact on competition indicators such as markups and measures of concentration.

The remainder of this paper is organized as follows; section 2 provides background on the Indonesian context and elaborates on our hypotheses. Section 3 discusses the data sources, identification of political connections and empirical methodology. Descriptive statistics are presented in section 4, which also assesses what industry characteristics are associated with greater political connections. Section 5 presents our main results. A final section concludes.

2. The Indonesian Context and Testable Hypotheses

2.1 The Suharto Era

Former president Mohamed Suharto (Soeharto) was notoriously corrupt and his New Order regime is often cited as a quintessential example of crony capitalism. It is often described as a pyramid, with power centralized amongst Suharto and his close confidantes, and characterized by intimate state-business relationships with native Indonesian military officers, ethnic Chinese businessmen, and the select few indigenous Indonesian businessmen. Many former military officers were appointed as ministers, high-level bureaucrats, and directors of state-owned companies. As reward for political support and kickbacks, loyal businessmen received privileges and protection from the government.

Such privileges were manifold and included (i) licensing arrangements providing monopoly rents inter alia in importing, distribution, and exploitation of natural resources (ii) privileged access to inputs including finance and land (iii) tax breaks and subsidies (iv) privileged treatment in public procurement (v) designation as mandatory partners in foreign joint ventures and (vi) price regulation resulting in supra-normal profits (McLeod, 2000). A few examples illustrate these mechanisms. The national car program, for instance, conferred a plethora of taxbreaks on Timor, a car-manufacturing firm owned by Suharto's son Tommy (Aswicahyono, 2006), who also benefitted from an exclusive monopoly on cloves. As another example, price-setting in the cement industry, whilst officially the domain of the Ministry of Trade, was heavily influenced by the Indonesian Cement Association, which acted like a cartel (Maarif, 2001).

In spite of extensive corruption, Indonesia grew rapidly during the 1980s and 1990s, a phenomenon often referred to as the "East Asian Paradox" (McLeod, 2000; Hadiz and Robison, 2005; Vial and Hanoteau, 2010). The economic success is often ascribed to a combination of liberalization efforts and competition amongst cronies, yet the Suharto's economic model was ultimately unsustainable, and ended with the financial crisis, which hit the country at the end of July in 1997. In spite of comparatively sound macroeconomic fundamentals, Indonesia was deeply affected and the economy contracted by almost 14%. Public protests forced Suharto to resign by May 1998. He was replaced by his protégé B.J. Habibie. A new wave of democratization, deregulation, decentralization, banking and public procurement reforms were undertaken after the crisis.

2.2 The Post-Suharto Era

The crisis and political transition sparked a substantial number of changes, including liberalization, decentralization, and democratization. Moreover, the attendant financial turmoil forced many big firms to restructure or close altogether (Hill, 2007; Brown, 2006). Some conglomerates closely connected to Suharto (e.g. Bimantara and Humpus) collapsed, while others managed to survive but lost at least some of their privileges. For instance, production and trade monopolies in several intermediate good producing industries

(i.e., cement, plywood, rattan, pulp, paper and clove) were eliminated (Pangestu et al., 2002).⁴ The national car program was abolished. Import protection and export taxes were reduced. In addition, restrictions on FDI were relaxed in many industries, and foreigners were allowed to fully own banks and companies through acquisition (IPA, 2011). Some state dominated sectors (e.g., civil aviation and telecommunications) were deregulated.⁵ In addition, in 1999 a competition commission (KPPU) was established.⁶ These changes potentially reduced barriers to entry, increased dynamics and competition. Though it should be noted that many changes did not directly impact the manufacturing sector and, moreover, that regulatory reform was piecemeal and often slow. For example, it was not until 2007 that Indonesia issued a new negative investment list. The functioning of the competition commission is still severely constrained by limited capacity and legal obstacles (Hadiz, 2004; Hill, 2007).

Decentralization reforms redistributed political, administrative, and economic power to provinces, districts and even cities, which encouraged competition (Hill, 2007), yet also resulted in a renegotiation of state-business relationships. In fact, many businessmen were elected themselves as heads of administrative units. In many other cases, they managed to win the support of heads of local cabinets by supporting them during election campaigns (Hadiz, 2004). Thus, the “gift-exchange” nature of state-business relationships appears to have changed very little.

Many of those with close connections to Suharto managed to maintain their positions of power and prominence. While all children of Suharto, except Titiek, were accused of corruption at some point, none of them were convicted on such charges. Tommy Suharto was convicted in 2002 for ordering the assassination of a Supreme Court Judge, but released in 2006, having served only 4 years of his 15 year sentence. Testimony to the Suharto’ family’s lasting political prominence was the recent candidature Suharto’s son in law, Prabowo Subianto, for the presidency in June 2014.

While economic growth in Indonesia recovered by 2000, it did not reach its pre-crisis levels and never exceeded 5%. Productivity growth did not recover fully after the crisis at least in the following 3-6 years, and the crisis did not appear to have improved the process of “creative destruction” (Hallward-Driemeier and Rijkers, 2013; Poczter et al., 2014). Hill (2007) suggests that slow recovery was due to difficulties associated with the implementation of the reforms (e.g. decentralization reforms mentioned above) and political instability.

⁴ In 1999 Indonesia’s parliament passed the Anti-Monopoly and Unfair Business Competition Law No. 5. The monopoly of the state logistics agency Bulog over the price and supply of rice was abolished in 1998. Since February 2000, the law prohibits any individual company from holding more than a 50% share of the domestic market.

⁵ Indonesia agreed, in its 1998-2003 pacts with the IMF, to end virtually every existing state monopoly.

⁶ Among other policies: Law No. 8 regarding Consumer Protection was passed in 1999; *Yayasan* law promoting transparency and accountability of state-controlled charities has been submitted in 2000 to the parliament and ratified in 2001; government eliminated import tariffs for sugar, limited import license to import producer.

Nevertheless, deregulation reforms presumably have been beneficial for industry structure. The collapse of Suharto's regime likely decreased the value of connections to him. Restructuring of politically connected companies, elimination of a number of production and trade monopolies, and elimination of investment restrictions are arguably all manifestations of reduced capture. This study examines whether changes in competition and firm dynamics are more pronounced in industries with higher presence of politically connected firms, as they were exposed to a higher degree of the state capture during the regime.

3. Empirical Strategy

3.1. Data Sources

The plant-level data come from the Annual Manufacturing Survey (*Survei Tahunan Perusahaan Industri Pengolahan*) collected by the Central Bureau of Statistics (*Badan Pusat Statistik*, BPS) of the Republic of Indonesia. The survey covers all formal manufacturing establishments with more than 20 employees, which account for about 80% of total output produced by the manufacturing sector in the country. For each year we have approximately 20,000 plant-level observations.⁷ Our sample spans the period from 1993 up until 2005, which enables us to characterize industry structure during the last years of Suharto's reign and the post-Suharto era. We exclude the crisis years (1997-1999), as these are characterized by turmoil and volatility.⁸ The survey contains detailed information on industry, employment, production, capital, ownership, and other firm characteristics. While the dataset is very rich, substantial cleaning of the data is required to render the data suitable for analysis (Harrison and Scorse, 2010; Hallward-Driemeier and Rijkers, 2013).⁹

The data on political connections are from Mobarraq and Purbasari (2006). The authors extend Fisman's (2001) seminal event study analysis and identify firms whose market value on the Jakarta Stock Exchange exhibited abnormally negative movements in response to news episodes about Suharto's deteriorating health during the period 1994-1997. They then identify the major shareholders and members of the Boards of Management and Commissioners of each of the adversely affected firms. The authors list all conglomerates owned by each of the members, as well as all firms that are part of these conglomerates, and thereby identify 269 of "politically connected" firms in the 1997 manufacturing census data. Among these firms 97 (36%) have a Suharto family member as one of their owners or on their board. These firms will be referred to as benefiting from "family connections." The remainder of the politically connected firms will be referred to as benefitting from "cultivated connections." We use this distinction to explore whether political connections of different nature tend to have different effects on industrial organization.

⁷ Hereafter we use terms "plant" and "firm" interchangeably.

⁸ Moreover our interest is in examining the impact of turnover on (medium-term) firm dynamics net of adjustment to the crisis.

⁹ Among the other papers utilizing BPS data are Blalock and Gertler (2006, 2009), Blalock et al. (2008), Javorcik and Arnold (2009).

Some limitations of the Mobarq and Purbasari's (2010) approach are important for accurate interpretation of our analysis. To start with, some publicly traded firms might spuriously react to news about Suharto's health and could consequently be incorrectly identified as politically connected. To assess whether this might drive our results, we run robustness checks in which we confine attention to firms with a direct link to the Suharto family. Second, it is likely that there are other privately held politically connected firms that are not captured by the authors' strategy.¹⁰ Thus, our measures likely underestimate the prevalence and importance of political connections.¹¹ This issue is compounded by the fact that politically connected firms are identified in the 1997 manufacturing survey, such that firms that enjoyed political connections but exited before 1997 are never identified as being connected. The number of politically connected firms we observe increases progressively from 166 in 1991 to a maximum 269 firms in 1997, then gradually decreases to 222 firms in 2005. However, there is no exit recorded between 1997 and 2000.¹² In our sector-level analysis we proxy pre-crisis connections with the Suharto regime by the average market share within 5 digit industries that politically connected firms accounted for in 1996 and 1997. In these years the information on the importance of connected firms is arguably most accurate. Thus, we construct our proxy for pre-crisis connections to be time invariant.

3.2. Empirical Methodology

To examine the impact of state-business relationship on competition and industry dynamics, we use the Suharto regime collapse as a quasi-natural experiment by which the value of political connections was reduced, and employ a difference-in-difference approach. Our empirical specification is

$$Y_{it} = \alpha PC_{presence_i} \times PostCrisis_t + \beta X_i \times PostCrisis_t + \gamma Z_{it} + \mu_i + \tau_t + \varepsilon_{it}, \quad (1)$$

where Y_{it} is one of the outcome variables in 5-digit ISIC industry i ¹³ at time t . We use a variety of indicators for firm dynamics and competition as dependent variables, notably entry and exit rates,¹⁴ employment growth

¹⁰ The methodology used by Mobarq and Purbasari may not identify the relatively smaller politically connected firms that are not part of large conglomerates. Another limitation of our study is that we are restricted to manufacturing sector only, while political connections widely observed in other economic sectors: minerals, petroleum, timber, land, shipping, finance, utility, and defense related sectors (Brown, 2006). Bourbakri et al. (2008), for example, finds that more than 50% of worldwide newly privatized political connections locate in financial, utilities, telecommunication and energy industries.

¹¹ Moreover, if non-identification of political connections is not uniform across industries, our results might be biased.

¹² The spectacular survival rate of connected firms might reflect the fact that some of the weaker firms might already have been weeded out, that the strategy is more likely to identify relatively larger firms part of extended business networks, and that some of the connected firms were "too big to fail" (more on this below). Another possibility is that the timing of exit of these firms was not accurately recorded in the survey, which is another motivation for discarding the crisis years.

¹³ Hereafter, we refer to 5-digit ISIC disaggregation as 'industry' and to 3-digit ISIC disaggregation as 'sector'.

¹⁴ The manufacturing survey design affects definitions of entry and exit. In particular, we cannot separate whether a firm enters (exits) the market or its employment goes above (below) 20 workers. For the main analysis we define entry (exit) as an entry (exit) into (out) of survey. In the robustness check we also define entry when the reported year of firm

rate, gross job reallocation rate, output growth rates, and proxies for market concentration and competition¹⁵. The key explanatory variable of interest is the interaction term between the measure of the presence of politically connected firms in an industry ($PCpresence_i$) and the post-crisis dummy variable ($PostCrisis_t$), which equals 0 for the years before the crisis 1993-1996, and equals 1 for the years after the crisis 2000-2005. The crisis years and the (immediate) recovery period are excluded from the analysis. X_i is a vector of time-invariant pre-crisis industry characteristics, and Z_{it} is vector of time-varying industry characteristics, which we discuss below. We control for 5-digit industry fixed effect μ_i and year fixed effects τ_t in all specifications. We also exclude the top and bottom 1% of the distribution of dependent variables to ensure our results are not driven by extreme values.

Our main hypothesis is that Suharto's fall reduced the value of political connections and the degree of state capture, and, consequently, had a pro-competitive impact. This effect should be more pronounced in industries with a higher presence of politically connected firms at the eve of the fall of the regime. We test the null hypothesis that this is not the case, i.e. that $\alpha = 0$. Since we control for industry fixed effects, the coefficient α measures how the change in the outcome variable associated with the regime collapse varies with the extent to which the market had been dominated by politically connected firms.

The key econometric challenge is to distinguish the impact of the fall of Suharto from potential confounding effects such as differential exposure to the financial crisis, as these events happened simultaneously in the country and could have heterogeneous impact on industries. To mitigate these effects, we control for a vector of pre-crisis X_i . The Asian financial crisis led to drastic currency devaluation, collapse of the banking system and numerous defaults. Industries that were more import oriented, less export oriented and more reliant on external finance before the crisis were hit harder by the crisis, and may have had differential recovery trajectories. Consequently, we control for pre-crisis industry shares of export, import, and availability of external finance.

Moreover, the crisis precipitated regulatory reforms; recall, for example, that the Indonesian government agreed to eliminate all state monopolies. Such reforms are likely to impact competition and firm dynamics and are potentially endogenous to political connections if they are targeted towards sectors where Suharto erected regulatory barriers to benefit his cronies. While it is impossible to establish counterfactual outcomes and assess which reforms would have taken place even in the absence of Suharto's fall, identifying which industries were candidates for subsequent regulatory reforms helps us assess how important such

creation corresponds to the year of entry into survey. In addition we exclude entry (exit) cases when number of workers 20-22. The results remain the same (not reported).

¹⁵ Among competition and concentration measures are price-cost margin, profit elasticity, Herfindahl-Hirschman Index, marker share of four largest firms in an industry. Although all these competition measures are widely used in the literature, they have limitations and drawbacks, therefore, we use all of them in attempt to represent a more complete picture of industrial organization.

reforms might have been in driving the evolution of industry dynamics after the crisis, and to what extent they account for a potential impact ascribed to political connections. To proxy potential reform targets we use indicators of the presence of state owned firms, foreign owned firms and the dummy variable indicating industries with a monopolist-importer. These measures are for 1996, since this is the last year before the crisis and deregulation reforms.

Finally, we control for the industry-level demand and supply shifts using the time-varying logarithm of real output lagged one period back, Z_{it} .¹⁶ This measure also captures the convergence effects of dynamic outcome variable. In the robustness check we control for 3-digit sector – time fixed effects δ_{jt} (instead of τ_t) to account for all possible sector-specific shocks. Thus in our most restrictive specifications, identification is based on comparing 5 digit industries to their peers within the same 3-digit sector grouping. The detailed definitions of outcome and control variables are presented in the Appendix A.

4. Descriptive Analysis

We start our analysis by describing the characteristics of politically connected firms and how their performance evolved after the Suharto regime collapse in section 4.1. In section 4.2 we examine the characteristics of the sectors in which they operate.

4.1. Politically Connected Firms

In 1996 we identify 255 politically connected firms.¹⁷ Although they accounted for only 1.1% of the total sample of manufacturing firms, they were very important from a macroeconomic point of view, as is documented in Table 1. They contributed to 4.8% of all jobs, produced 16.0% of total output, generated 20.2% of value added, and owned 19% of total fixed assets in manufacturing sector in 1996. They also consumed 14% of all imported materials in, and accounted 5% of all exports, suggesting these firms were mostly focused on production for domestic consumption.

Table 1: Economic importance of politically connected firms (N=255)

N of firms	Output	Value added	Capital	Labor	Wages	Import	Export	Investments
1.11	16.07	20.19	18.98	4.77	9.60	14.12	5.26	9.40

Note: This table reports shares in total manufacturing sector attributed to politically connected firms in 1996, in %.

Table 2 presents key firm characteristics and static performance indicators, comparing politically connected firms to firms lacking such connections, both in 1996 and 2001. The table demonstrates two types of comparisons; one of connected firms against non-connected firms similar in size at the eve of the crisis,

¹⁶ Inclusion of this variable essentially reduces our sample to 1994-1996 and 2001-2005 for outcome variables.

¹⁷ Although in the analysis we use the presence of politically connected firms averaged over 1996-1997, in the section 4.1 we focus on 1996 year only to avoid the impact of crisis that started in 1997.

labeled by symbol ‘‡’¹⁸ and one of connected firm against all non-connected firms. Table 3 documents dynamic performance differences over the periods 1994-1996 and 2001-2005, for the same comparison groups. These tables present both descriptive statistics and simple tests of whether the differences in indicators between connected and non-connected change after the regime collapse. One caveat in interpreting the tables is that identification of political connectedness occurs in 1997.

Consistent with the statistics presented in Table 1, connected firms significantly outperform non-connected firms. In 1996, connected firms generated 50 times more output than non-connected firms on average, and more than 12 times as much output when operating in the same 5-digit industry. Firms with connections also have higher value-added, both in absolute terms and per worker, and invest more. The superior size of connected firms is also reflected in higher market shares at the 5-digit level, with connected firms having an average market share of 12% compared to 1% for non-connected firms. They also have higher shares of foreign and state ownership, are much more likely to import, and somewhat more likely to export. These findings are consistent with the Suharto family's tendency to partner with foreign firms, and to control big businesses by means of government ownership. Privileged access to import licenses (Mobarraq and Purbasari, 2006) helps explain the greater propensity of connected firms to import. Once we restrict the comparison to non-connected firms producing similar levels of output, performance differences are much less dramatic, with the only significant differences being that connected firms have more capital.

At first sight, comparing performance differences in levels between connected and non-connected firms in 1996 and 2001 would appear to suggest that the crisis did not have an especially pronounced impact on connected firms. They firms remained large and continued to produce more output per worker, even though their average market share decreased. They also continued to import and invest more than non-connected firms. However, output, value-added, employment, and market share differentials between the average connected and average non-connected firms were significantly less pronounced in 2001 than they had been in 1996, though differences in state ownership and wage differences widened. Once performance comparisons are confined to firms producing similar levels of output in 1996, politically connected firms appear to have done a better job of maintaining high levels of output and value-added than their similarly sized peers.

Dynamic performance differences were also dramatic. In the pre-crisis period connected firms were expanding output and employment significantly faster than non-connected firms. They were growing at almost 14% per annum in terms of output compared to 6% for non-connected firms, and at 4% per annum in

¹⁸ To choose a comparison group we compute weights for each firm by implementing a propensity score matching, where political connectedness is a treatment variables and independent variables are the real output and 4-digit industry dummies. This give us 591 firms with weights varying from 0.33 (for 85% of these firms) to 3.33.

terms of labor compared to 2% for non-connected.¹⁹ Again, confining the comparison group to non-connected firms of the same size in 1996, these performance differentials are statistically insignificant. After the crisis the growth rates of connected firms dramatically decelerated to 3% for output (as did growth rates for large non-connected firms) and to 0.2% for labor. At the same time growth rate for output of non-connected firms drastically increased to 7%, though it decreased to -0.3% for employment.

To summarize, although we only identify a limited number of politically connected firms, our data demonstrate that they were major industrial players that accounted for a significant share of manufacturing output, employment and investment. While these firms seem to have weathered the crisis fairly well, in the sense that they remained large, their growth rates have decelerated, but not relative to firms of the same size at the eve of the crisis.

Table 2: Characteristics of politically connected firms, in levels

	1996					2001					(PC-nPC [‡]) ₂₀₀₁ – (PC-nPC [‡]) ₁₉₉₆	(PC-nPC) ₂₀₀₁ – (PC-nPC) ₁₉₉₆
	PC	nPC [‡]	nPC	PC-nPC [‡]	PC-nPC	PC	nPC [‡]	nPC	PC-nPC [‡]	PC-nPC		
Output	18.38	18.32	14.45	0.11	2.56***	18.44	18.22	14.85	0.04***	2.30***	0.24**	-0.26***
Value added	17.59	17.42	13.64	0.20	2.60***	17.62	17.27	14.08	0.38**	2.27***	0.25**	-0.35***
Capital	17.43	16.99	13.88	0.38**	2.29***	17.36	16.75	13.62	0.44**	2.40***	0.22	0.07
Labor	5.93	5.76	4.13	0.15	1.36***	5.87	5.80	4.23	0.62**	1.26***	-0.05	-0.12**
Wage/Labor	9.45	9.29	8.48	0.12	0.56***	10.06	9.90	8.86	0.10	0.57***	0.01	0.23***
Investments	16.56	16.87	13.07	-0.23	2.08***	16.09	15.42	12.52	0.17**	2.13***	0.80	-0.46
Import	0.30	0.29	0.08	0.01	0.12***	0.33	0.30	0.10	0.36	0.11***	0.02	0.01
Export [§]	0.18	0.18	0.13	-0.00	0.08***	0.15	0.16	0.13	0.03	0.04***	-0.01	-0.02
Foreign own.	0.14	0.17	0.04	-0.01	0.07***	0.18	0.21	0.07	0.00	0.07***	0.00	0.02
State own.	0.15	0.08	0.02	0.07	0.10***	0.27	0.15	0.09	0.11**	0.15***	0.06**	0.06**
Market share	0.12	0.09	0.01	-0.00	0.07***	0.10	0.07	0.01	0.01	0.06***	0.00	-0.02***

Note: This table reports mean values of firm characteristics for politically connected (PC) and non-connected (nPC) firms, in levels in 1996 and 2001. Symbol [‡](nPC[‡]) indicate non-connected firms that are similar to connected firms by size. The table also reports the differences between connected and non-connected firms after adjustment for 5-digit industry fixed effects. The differences of means do not add up because of demeaning. All variables are in logarithms, except market share (at 5-digit), ownership, import and export, which are shares. *** indicates significance at the 1% level, ** - at the 5% level, and * - at the 10% level. Standard errors are clustered at 5-digit industry level. [§] statistics for export are from 2000 instead of 2001.

Table 3: Characteristics of politically connected firms, in changes

	1994-1996					2001-2005					(PC-nPC [‡]) ₂₀₀₁₋₂₀₀₅ – (PC-nPC [‡]) ₁₉₉₄₋₁₉₉₆	(PC-nPC) ₂₀₀₁₋₂₀₀₅ – (PC-nPC) ₁₉₉₄₋₁₉₉₆
	PC	nPC [‡]	nPC	PC-nPC [‡]	PC-nPC	PC	nPC [‡]	nPC	PC-nPC [‡]	PC-nPC		
Output	13.79	19.51	6.10	-4.45	4.74**	2.73	2.58	7.07	-0.59	-8.56***	4.93	-11.91***
Value added	12.66	18.33	5.74	-5.74	4.33*	3.93	2.58	7.80	-0.22	-8.65***	5.97	-10.55***
Capital	1.42	8.27	4.45	-5.60	-1.90	0.77	1.85	0.48	-1.38	0.84	4.48	3.29
Labor	4.34	7.23	1.73	-3.60**	0.67	0.20	0.42	-0.30	-0.20	-0.53	2.22	-1.98*
Wage/Labor	3.03	4.57	3.06	-3.08	-0.61	8.94	10.08	7.16	-0.59	-1.72	0.74	1.79
Import	-0.60	-0.27	-0.30	-0.40	-0.12	-0.25	-0.29	-0.11	0.18	-0.10	0.28	0.10
Export [§]	1.91	1.34	0.42	0.85	1.30**	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Foreign own.	1.05	1.08	0.13	0.37	0.90**	0.83	0.40	0.18	0.31	0.53*	0.37	-0.26
State own.	-0.22	-0.74	-0.02	0.85	0.18	-1.00	-0.59	0.12	-0.49	-0.84**	-0.93	-0.93*
Market share	-0.08	0.09	-0.08	-0.24	0.01	-0.02	-0.31	0.02	0.31	-0.04	0.45	-0.03

¹⁹ The growth rates presented in Table 2 do not account for entry and exit of firms; they are logarithmic changes of indicators. The relationships between number for PC and non-PC firms, before and after the crisis remain the same if we account for entry and exit.

Note: This table reports mean values of firm characteristics for politically connected (PC) and non-connected (nPC) firms, in changes (differences of logarithms or differences of shares for market share (at 5-digit), ownership, import and export variables, all multiplied by 100) over 1994-1996 and 2001-2005. Symbol ‡ (nPC‡) indicate non-connected firms that are similar to connected firms by size. The table also reports the differences between connected and non-connected firms after adjustment for 5-digit industry fixed effects. The differences of means do not add up because of demeaning. Statistics for export are not reported, as it available only in 2004 year. *** indicates significance at the 1% level, ** - at the 5% level, and * - at the 1% level. Standard errors are clustered at 5-digit industry level. § statistics for export shared are not available after 2000.

4.2. Politically Connected Industries

The primary goal of this study is assessing changes in industry structure and dynamics associated with the collapse of the Suharto regime. We start by examining the characteristics of industries in which connected firms tend to operate. Table 4 depicts the relative presence of politically connected firms in terms of output, employment, and number of firms and by 3-digit sector in 1996-1997. Connected firms operate in 80% of 3-digit sectors and there is considerable heterogeneity in their importance across such sectors. In manufacture of cement and lime products (363), and in iron and steel basic industries (371), for example, they produce more than 50% of total industrial output.

Table 4: The presence of politically connected firms²⁰

ISIC	Industry	Output	Labor	# Firms
363	Manufacture of cement and lime products	55.21	25.95	1.63
371	Iron and steel basic industries	51.73	22.10	4.41
341	Manufacture of paper and paper products	37.23	31.86	5.19
351	Manufacture of industrial chemicals	27.78	17.48	5.85
312	Manufacture of food products not elsewhere classified, and manufacture of prepared animal feeds	26.57	6.57	1.27
311	Food manufacturing	20.87	6.05	1.69
362	Manufacture of glass and glass products	18.75	16.92	4.44
361	Manufacture of pottery, china and earthenware	18.75	8.81	5.64
383	Manufacture of electrical machinery apparatus, appliances and supplies	15.25	6.91	2.87
352	Manufacture of other chemical products	14.83	8.04	4.00
384	Manufacture of transport equipment	13.98	22.80	2.57
372	Non-ferrous metal basic industries	7.55	2.71	1.28
382	Manufacture of machinery except electrical	5.72	16.83	2.62
342	Printing, publishing and allied industries	3.70	0.79	0.45
331	Manufacture of wood and wood and cork products, except furniture	3.20	3.14	0.51
356	Manufacture of plastic products not elsewhere classified	2.97	1.27	0.90
381	Manufacture of fabricated metal products, except machinery and equipment	2.71	4.51	1.36
313	Beverage industries	2.68	1.78	0.72
321	Manufacture of textiles	1.78	1.31	0.65
355	Manufacture of rubber products	1.50	0.87	0.82
324	Manufacture of footwear, except vulcanized or mounded rubber or plastic footwear	1.09	0.92	0.25
332	Manufacture of furniture and fixtures, except primarily of metal	0.49	0.61	0.15
369	Manufacture of other non-metallic mineral products	0.44	0.62	0.35
390	Other Manufacturing Industries	0.40	0.56	0.21
322	Manufacture of wearing apparel, except footwear	0.34	0.18	0.09
314	Tobacco manufactures	0	0	0
323	Manufacture of leather and products of leather, leather substitutes and fur, except footwear and wearing apparel	0	0	0
353	Petroleum refineries	0	0	0
354	Manufacture of miscellaneous products of petroleum and coal	0	0	0
364	Manufacture of clay products	0	0	0
385	Manufacture of professional and scientific, and measuring and controlling equipment not elsewhere classified, and of photographic and optical goods	0	0	0

²⁰ Appendix B presents the distribution of the presence of politically connected firms by 5-digit industry code.

Note: This table reports the distribution of the presence of politically connected firms in Indonesia by 3-digit ISIC rev. 2 industry code, averaged over 1996-1997. It is measured as a share of output produced by PC firms relative to total output, labor employed by PC firms relative to total labor, and number of PC firms relative to total number of firms. All numbers are in percent (%).

Within 3-digit sectors, however, the variation of the presence of politically connected firm is high as well, as is documented in Appendix B which provides an overview of the importance of connected firms by 5-digit industry. At this level of disaggregation connected firms operate in 37% of all industries, and the mean market share politically connected firms accounted for at the eve of the crisis equals 9.7%.

To examine the characteristics of industries where politically connected firms account for a larger share of output, Table 5 presents a snapshot of correlations between the presence of connected firms and industry-levels aggregates (Panel A) and indicators of competition and firm dynamics (Panel B). Panel A documents that industries with higher presence of political connections generate more output and value added, pay higher average wages and have greater SOE penetration. These industries, however, are mostly non-tradable as they export less. After the regime collapse the correlations remain almost unchanged. Panel B shows that industries in which connected firms were more important are more concentrated and less competitive, as indicated by higher price-cost margins and the profit elasticity (i.e. in industries where connected firms account for a larger share of output increases in marginal costs are associated with proportionately smaller reductions in profits). After the regime collapse we observe only marginal improvement in competition measures. Before the crisis, more politically connected industries were also associated with exceptionally low entry, exit, net job creation and reallocation rates. After the crisis the correlations were attenuated, which is potentially indicative of a pro-competitive impact associated with less potent political connections.

Table 5: Pairwise correlation between the presence of politically connected firms and industry characteristics

	1996	2001	2005		1994-1996	2001-2005
	Panel A				Panel B	
Output	0.14**	0.15***	0.14**	Entry rate	-0.12***	-0.07**
Value Added	0.17***	0.17***	0.15**	Exit rate	-0.16***	-0.04
Capital	0.14**	0.15**	0.12**	Price-cost margin	0.15***	0.12***
Labor	-0.01	0.01	0.01	Profit elasticity	0.11***	0.02
Wage/Labor	0.38***	0.31***	0.30***	Herfindahl–Hirschman Index	0.24***	0.20***
Exports [§]	-0.12**	-0.12**	-0.15***	Market share of 4 largest firms	0.15***	0.13***
Imports	-0.03	0.07	0.07	Employment growth	-0.10***	0.00
Foreign ownership	0.01	-0.02	0.03	Output growth	-0.04	-0.02
State ownership	0.36***	0.31***	0.28***	Gross job reallocation rate	-0.19***	-0.09***

Note: This table reports the pairwise correlations between the presence of politically connected firms, proxied by their market share averaged over 1996 and 1997, and industry characteristics, at 5-digit industry code, in 1996, 2001 and 2005. Number of industries in the sample is around 308. *** indicates significance at the 1% level, ** - at the 5% level, and * - at the 1% level. [§] correlations for exports are for 2001 and 2004 instead of 2001 and 2005.

5. Results and Discussion

5.1. Baseline Results

Table 6 presents our baseline regressions examining how a reduction in the value of political connections affects industry structure, using as dependent variables entry, exit, growth in employment, gross job reallocation, growth in output, price-cost margins, profit elasticity and concentration measures. For each outcome measure, we present three separate specifications. The first one, which is presented in Panel A merely includes an interaction term between the presence of politically connected firms before the crisis and post-turnover dummy, industry size, and industry and year fixed effects. The second specification is presented in Panel B and includes additional interactions between the post-crisis dummy and industry's pre-crisis import and export shares, and the availability of external finance. The third specification, presented in Panel C adds dummy for import-monopolistic industries, as well as the presence of state and foreign companies in 1996. We include these to assess the role of deregulation reforms. Table 6, however, demonstrates that the inclusion of these variables virtually do not change the coefficient of interest, therefore we focus on the results from Panel C hereafter.

Our main finding is that the fall of Suharto had a pro-competitive impact on Indonesian manufacturing sector. Greater presence of political connections before the fall of Suharto is associated with significantly more entry, exit, employment growth, and job reallocation post-crisis. The coefficients estimates are not only statistically significant, but economically meaningful; for example industries in which politically connected firms had a market share of 10% pre crisis, witness 0.8% higher entry, 0.3% more exit, and 0.8% faster employment growth compared to industries that did not. By contrast, the coefficient on output growth is not statistically significant.

Table 6: The impact of political turnover on industry structure

<i>Panel A: Without industry controls</i>									
	(I) Entry	(II) Exit	(III) GJRR	(IV) GJRR	(V) PCM	(VI) PCM	(VII) PE	(VIII) HHI	(IX) MS4
PCpresence \times	0.09***	0.04***	0.09***	0.11***	0.07	-0.03	-0.71**	-0.06	-0.02
PostCrisis	(0.03)	(0.01)	(0.02)	(0.03)	(0.07)	(0.06)	(0.30)	(0.06)	(0.02)
Size $_{t-1}$	-0.05***	0.00	-0.04***	-0.03**	-0.25***	0.03***	0.24***	0.01	0.01**
	(0.01)	(0.00)	(0.01)	(0.01)	(0.02)	(0.01)	(0.08)	(0.01)	(0.01)
N observ.	2,440	2,118	2,417	2,437	2,411	2,338	2,237	2,420	2,421
N groups	310	310	310	310	310	310	289	309	309
R2 within	0.25	0.06	0.12	0.13	0.16	0.03	0.02	0.01	0.01
<i>Panel B: with Industry Controls</i>									
	Entry	Exit	GJRR	GJRR	PCM	PE	HHI	MS4	
PCpresence \times	0.09***	0.04**	0.10***	0.11***	0.07	-0.03	-0.74**	-0.04	-0.01
PostCrisis	(0.03)	(0.01)	(0.03)	(0.03)	(0.08)	(0.06)	(0.32)	(0.06)	(0.02)
Size $_{t-1}$	-0.05***	0.00	-0.04***	-0.03**	-0.25***	0.03***	0.23***	0.01	0.01*
	(0.01)	(0.00)	(0.01)	(0.01)	(0.02)	(0.01)	(0.08)	(0.01)	(0.01)
Import $_{bc}$	-0.01	0.00	-0.01	-0.02	-0.09	0.04	0.28	-0.10***	-0.07***
	(0.03)	(0.01)	(0.03)	(0.03)	(0.07)	(0.04)	(0.33)	(0.04)	(0.02)
Export $_{bc}$	0.02	-0.01	0.03	0.03	-0.00	0.00	0.39	0.09*	0.02

	(0.04)	(0.01)	(0.04)	(0.04)	(0.08)	(0.05)	(0.32)	(0.04)	(0.03)
External fin _{bc}	-0.07	-0.02	-0.06	-0.05	-0.14	0.04	-0.51	-0.05	-0.02
	(0.05)	(0.01)	(0.04)	(0.05)	(0.11)	(0.05)	(0.44)	(0.05)	(0.03)
N observ.	2,440	2,118	2,417	2,437	2,411	2,338	2,237	2,420	2,421
N groups	310	310	310	310	310	310	289	309	309
R2 within	0.25	0.06	0.12	0.13	0.16	0.03	0.02	0.03	0.03
<i>Panel C: with Industry and Regulation Controls</i>									
	Entry	Exit	GJRR	PCM	PE	HHI	MS4		
PCpresence _x	0.08**	0.03**	0.08**	0.09***	0.03	-0.01	-0.72**	0.01	-0.01
PostCrisis	(0.03)	(0.01)	(0.03)	(0.03)	(0.08)	(0.07)	(0.34)	(0.06)	(0.03)
Size _{t-1}	-0.05***	0.00	-0.04***	-0.03**	-0.25***	0.03***	0.23***	0.01	0.01**
	(0.01)	(0.00)	(0.01)	(0.01)	(0.02)	(0.01)	(0.08)	(0.01)	(0.01)
Import _{bc}	0.00	-0.01	-0.00	-0.03	-0.09	0.08*	0.61	-0.06	-0.06**
	(0.04)	(0.01)	(0.04)	(0.04)	(0.07)	(0.04)	(0.39)	(0.04)	(0.03)
Export _{bc}	0.02	-0.01	0.04	0.03	-0.00	0.01	0.45	0.09**	0.02
	(0.04)	(0.01)	(0.04)	(0.04)	(0.08)	(0.05)	(0.32)	(0.04)	(0.03)
External fin _{bc}	-0.07	-0.02	-0.05	-0.04	-0.13	0.05	-0.48	-0.06	-0.02
	(0.05)	(0.01)	(0.04)	(0.05)	(0.11)	(0.04)	(0.43)	(0.05)	(0.03)
Import mon _{bc}	-0.01	-0.00	0.00	0.01	-0.00	-0.03	-0.23	-0.05**	-0.01
	(0.02)	(0.01)	(0.02)	(0.02)	(0.03)	(0.02)	(0.19)	(0.02)	(0.01)
FRpresence _{bc}	-0.01	0.03	-0.03	0.02	0.02	-0.08	-0.59	-0.06	-0.02
	(0.06)	(0.02)	(0.05)	(0.05)	(0.10)	(0.06)	(0.38)	(0.05)	(0.03)
STpresence _{bc}	0.03	0.01	0.06	0.07	0.14	-0.05	-0.16	-0.12	0.02
	(0.04)	(0.02)	(0.05)	(0.05)	(0.09)	(0.06)	(0.46)	(0.08)	(0.03)
N observ.	2,440	2,118	2,417	2,437	2,411	2,338	2,237	2,420	2,421
N groups	310	310	310	310	310	310	289	309	309
R2 within	0.25	0.06	0.12	0.14	0.16	0.04	0.03	0.05	0.03

Note: This table reports the results from the estimation of the specification (1) for the dependent variables specified in the headlines. Panel A does not include any pre-crisis industry-level variables. Exit rate is not defined in 2005. Definitions of the variables are in Appendix A. All regressions include 5-digit industry and year fixed effects. Standard errors are robust and clustered at the industry level. *** p<0.01, ** p<0.05, * p<0.1.

The impact on competition indicators is mixed. The profit elasticity decreased significantly in industries where connected firms historically had higher market shares.²¹ The associations between the market share of connected firms and price-cost margins and indicators of industry concentration are not statistically significant, even though point estimates are consistent with a pro-competitive impact (besides Herfindahl-Hirschmal Index). To summarize, although the fall of Suharto was associated with greater dynamism, faster employment growth, and more reallocation in sectors in which his cronies had extensive business interests, conventional competition indicators did not improve markedly, with the notable exception of the profit elasticity measure.

5.2. Which Type of Connections Matter?

To assess how impacts might have varied by the type of political connections, we re-ran our model distinguishing between family connections and cultivated connections. The results, presented in Table 7, do not suggest that the prevalence of both types of connections during the Suharto era are similarly correlated with subsequent changes in competition indicators.

Table 7: The impact of political turnover on industry structure: different types of connections

²¹ The specification for profit elasticity utilizes only 289 observations, since PE was not possible to compute for some industries containing low number of firms, see Appendix A for the definition of PE competition measure.

	(I) Entry	(II) Exit	(III) GJRR	(IV) GJRR	(V) PCM	(VI) PE	(VII) HHI	(VIII) MS4	(IX) MS4
PCpres. cultiv.×	0.08**	0.02	0.07*	0.08**	0.07	0.06	-0.60	0.06	-0.00
PostCrisis	(0.04)	(0.02)	(0.04)	(0.04)	(0.09)	(0.09)	(0.38)	(0.08)	(0.03)
PCpres. family×	0.08	0.07***	0.11**	0.11*	-0.09	-0.17*	-0.96	-0.12	-0.04
PostCrisis	(0.07)	(0.03)	(0.05)	(0.06)	(0.14)	(0.09)	(0.67)	(0.12)	(0.05)
Size _{t-1}	-0.05***	0.00	-0.04***	-0.03**	-0.25***	0.04***	0.23***	0.01	0.01**
	(0.01)	(0.00)	(0.01)	(0.01)	(0.02)	(0.01)	(0.08)	(0.01)	(0.00)
Import _{bc}	0.00	-0.01	-0.00	-0.03	-0.09	0.08*	0.60	-0.06*	-0.06**
	(0.04)	(0.01)	(0.04)	(0.04)	(0.08)	(0.04)	(0.39)	(0.04)	(0.03)
Export _{bc}	0.02	-0.01	0.04	0.03	-0.00	0.00	0.44	0.08**	0.02
	(0.04)	(0.01)	(0.04)	(0.04)	(0.08)	(0.05)	(0.32)	(0.04)	(0.03)
External fin _{bc}	-0.07	-0.02	-0.05	-0.04	-0.13	0.05	-0.48	-0.06	-0.02
	(0.05)	(0.01)	(0.04)	(0.05)	(0.11)	(0.04)	(0.43)	(0.05)	(0.03)
Import mon _{bc}	-0.01	-0.00	0.00	0.01	-0.00	-0.03	-0.23	-0.05**	-0.01
	(0.02)	(0.01)	(0.02)	(0.02)	(0.03)	(0.02)	(0.19)	(0.02)	(0.01)
FRpresence _{bc}	-0.01	0.03	-0.03	0.02	0.02	-0.08	-0.58	-0.05	-0.02
	(0.06)	(0.02)	(0.05)	(0.05)	(0.10)	(0.06)	(0.38)	(0.05)	(0.03)
STpresence _{bc}	0.03	0.02	0.07	0.08	0.11	-0.09	-0.19	-0.14*	0.02
	(0.04)	(0.02)	(0.05)	(0.05)	(0.09)	(0.06)	(0.46)	(0.08)	(0.04)
N observ.	2,440	2,118	2,417	2,437	2,411	2,338	2,237	2,420	2,421
N groups	310	310	310	310	310	310	289	309	309
R2 within	0.25	0.07	0.12	0.14	0.16	0.04	0.03	0.06	0.03

Note: This table reports the results from the estimation of the specification (1) for the dependent variables specified in the headline. The presence of political connections is separated on the presence of family connections and cultivated connections. Exit rate is not defined in 2005. Definitions of the variables are in Appendix A. All regressions include 5-digit industry and year fixed effects. Standard errors are robust and clustered at the industry level. *** p<0.01, ** p<0.05, * p<0.1.

5.3. Robustness Checks

Table 8 presents a number of robustness checks. To start with, one might be concerned that our findings might be driven by unobserved sector shocks, such as changing global demand and technological shocks, correlated with both competition firm dynamics and pre-crisis political connections. To control for this possibility, we run robustness checks in which we include interactions between 3-digit sector and time dummies. Identification is thus based on comparing the performance of a given 5 digit industry to that of other 5 digit industries within the same 3-digit industry grouping, and explaining variation between them as a function of pre-crisis connectedness. The results, which are presented in Table 8 below, are qualitatively robust to the inclusion of these sector-time interactions, though it should be noted that the impact on the profit elasticity is no longer statistically significant once sector shocks are controlled for.

Second, we exclude those industries in which politically connected firms had majority of state ownership, as they could be either fully captured or strategically important industries and therefore highly regulated even after the crisis.²² This slightly improves the estimates of the coefficients of interest, as is demonstrated in panel B.

²² In our sample these industries are Manufacture of other cooking oil made of vegetables and animal oils; Manufacture of straight fertilizers; Manufacture of explosives and ammunition; Manufacture of household wares, made of stone; Manufacture of lifting and hoisting machineries, tractor, bulldozer and the like; Manufacture of machinery and equipments n.e.c; Manufacture of communication equipments; Manufacture of ships / boats; Manufacture of railroad equipments; Manufacture of aircraft and components.

Third, we compute industry characteristics excluding politically connected firms to assess the impact of political turnover on non-connected companies. The results, presented in panel C, show that if anything, the impacts on industry dynamics are even more pronounced. Remarkably, the coefficients on our variable of interest become significant and positive for the output growth rates, and significant and negative for the price-cost margin showing that the intensity of competition improved in industries with higher presence of politically connected firms before the crisis. We do not report the results for concentration measures as they would be incorrect after the exclusion of big players from the markets.

Fourth, panel D presents the results of a placebo experiment in which we randomly assigned political connectedness using the pre-crisis distribution of connections. As expected, placebo connections do not correlate with indicators of firm dynamics or competition measures.

Finally, the bottom two panels, E and F, display the results of a placebo crisis event. In panel E we assume that the political crisis happened at the end of 1994, and in panel F we assume that the crisis occurred at the end of 2002. As expected, the coefficients of interest are insignificant and often incorrect size and sign.

Table 8: Robustness Tests

	(I) Entry	(II) Exit	(III) $\frac{\Delta \text{Growth}}{\text{Growth}}$	(IV) GJRR	(V) $\frac{\Delta \text{PCM}}{\text{PCM}}$	(VI) PCM	(VII) PE	(VIII) HHI	(IX) MS4
Panel A: Controlling for Sector-Specific Shocks (including 3-digit Sector*Year Dummies)									
PCpresence \times	0.07*	0.04**	0.09**	0.12***	0.03	0.02	-0.42	-0.01	-0.00
PostCrisis	(0.04)	(0.02)	(0.04)	(0.04)	(0.09)	(0.06)	(0.44)	(0.06)	(0.03)
Panel B: Excluding Industries Where Connected Firms Were State Owned									
PCpresence \times	0.10***	0.03*	0.11***	0.10***	0.08	-0.04	-0.56*	-0.01	-0.01
PostCrisis	(0.04)	(0.01)	(0.03)	(0.03)	(0.08)	(0.07)	(0.32)	(0.06)	(0.03)
Panel C: Excluding Politically Connected Firms When Computing Industry Characteristics									
PCpresence \times	0.13***	0.05**	0.17***	0.13***	0.36***	-0.13**	-1.10***	n/a	n/a
PostCrisis	(0.05)	(0.02)	(0.04)	(0.04)	(0.12)	(0.06)	(0.36)	n/a	n/a
Panel D: Placebo Treatment Effect									
PCpresence _{placebo} \times	0.02	-0.01	0.00	0.01	-0.05	0.00	-0.11	0.00	-0.04
PostCrisis	(0.03)	(0.01)	(0.03)	(0.03)	(0.07)	(0.04)	(0.35)	(0.04)	(0.03)
Panel E: Placebo Crisis Effect, 1993-1994 before crisis and 1995-1996 after crisis									
PCpresence \times	-0.04	-0.03*	0.07	0.04	0.01	-0.01	0.22	0.04	0.01
PostCrisis	(0.05)	(0.02)	(0.05)	(0.04)	(0.09)	(0.03)	(0.35)	(0.03)	(0.02)
Panel F: Placebo Crisis Effect, 2000-2002 before crisis and 2003-2005 after crisis									
PCpresence \times	0.02	-0.02	-0.03	-0.03	0.04	0.02	0.13	-0.00	-0.01
PostCrisis	(0.02)	(0.01)	(0.04)	(0.03)	(0.17)	(0.04)	(0.24)	(0.03)	(0.02)

Note: This table reports the results from the estimation of the specification (1) for the dependent variables specified in the headline. PCpresence_{placebo} is a variable, where industries have randomly assigned original distribution of the presence of politically connected firms. Exit rate is not defined in 2005. Definitions of the variables are in Appendix A. All regressions include 5-digit industry, year fixed effects. Standard errors are robust and clustered at the industry level. *** p<0.01, ** p<0.05, * p<0.1

6 Conclusion

Using plant-level census data spanning the collapse of the Suharto's regime this paper analyzes the impact of cronyism on industry structure and dynamics in Indonesian manufacturing. We exploit the political crisis as a quasi-natural experiment inducing variation in the value of political connections with president Suharto and control for potential confounders such as changing credit market conditions and sector-specific shocks that may impact industry structure.

The comparative analysis of firm and industry dynamics is suggestive of spillovers. Whereas politically connected firms were resilient to the crisis and continued to outperform their competitors in the post-Suharto period, their growth rates dropped precipitously though not relative to those of firms of the same size. By contrast, at the industry-level, greater market share of politically connected firms before the crisis is associated with faster employment growth, higher entry and exit, and more employment reallocation post crisis. Increased dynamism in these industries, does not translate into significant reductions in markups and concentration rates or accelerated output growth, but was associated with a reduction in the profit elasticity.

In sum, our findings are consistent with political connections obstructing competition, re-allocation and growth. Establishing causality, and examining the mechanisms by which state-business relationships impact firm dynamics are important areas for future research.

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Appendix A: Definitions of variables

Presence (importance) of political connections ($PC_{presence}$) in industry i is the share of output produced by politically connected firms: $PC_{presence}_i = \frac{\sum_{j \in i} PC_j \cdot Y_j}{\sum_{j \in i} Y_j}$, where PC_j is a dummy variable indicating Suharto crony and Y_j is the output of firm j . The measure is averaged over 1996 and 1997.

Entry rate ($Entry$) in industry i at time t is the number of all new firms at time t divided by the total number of firms at time $t-1$.

Exit rate ($Exit$) in industry i at time t is the number of all firm that do not exist at time $t+1$ divided by the total number of firms at time t .

Net job creation rate (or employment growth rate) (g_L) in industry i at time t is defined as $g_{Lit} = \sum_{j \in i} \frac{X_{jt}}{\sum_{j \in i} X_{jt}} g_{Ljt}$ – the weighted sum of firm-level growth rates. $\frac{X_{jt}}{\sum_{j \in i} X_{jt}}$ is the relative employment share of firm j in industry i and g_{Ljt} is the firm-level employment growth rate. Following Davis et al. (1996) and Haltiwanger et al. (2013), $g_{Ljt} = \frac{E_{jt} - E_{jt-1}}{X_{jt}}$, where E_{jt} denotes employment of firm j at year t , and $X_{jt} = (E_{jt} + E_{jt-1})/2$.²³ This employment growth g_{Lit} measure is symmetric, varies within $[-2; 2]$ and accommodates both entry and exit.²⁴

Gross job reallocation rate ($GJRR$) in industry i at time t is the sum of the gross job creation and destruction rates, where the gross job creation rate is $\sum_{j \in i} \frac{X_{jt}}{(\sum_{j \in i} X_{jt})} \max\{0, g_{jt}\}$, and the gross job destruction rate is $\sum_{j \in i} \frac{X_{jt}}{(\sum_{j \in i} X_{jt})} \max\{0, |g_{jt}|\}$.

Output growth rate (g_Y) in industry i at time t is computed in the same way as the employment growth rate; it also account for entry and exit of firms.

Price-cost margin (PCM) in industry i at time t is defined as $PCM_{it} = \frac{(Output - Variable\ cost)_{it}}{Output_{it}}$, where variable cost includes labor compensation and intermediate inputs.

Profit elasticity (PE) in industry i at time t is the vector of coefficients $\hat{\beta}_{it}$ estimated from the following econometric specification $\ln Profit_{jt} = \beta_t \ln \left(\frac{Variable\ cost}{Output} \right)_{jt} + \mu_j + \theta_t + \varepsilon_{jt}$ for each industry i (see Boone et al., 2007 and Boone, 2008). Like the price-cost margin it is an inverse competition intensity measures meaning that higher values of these measures stand for lower competition intensity. Note that the profit elasticity is theoretically more appealing indicator of competition than the PCM, which can actually increase in response to intensified competition.

²³ The desirable features of this growth rate measure, which is a second order approximation of the log difference for growth rates around zero are discussed in Davis et al. (1996). The underlying statistical properties are discussed in detail in Tornqvist, Vartia and Vartia (1985).

²⁴ To see, this, note that for firms that enter at year t , $E_{it-1} = 0$, while for firms that exit $E_{it} = 0$, such that for entering firms $g_{it} = 2$, while for exiting firms $g_{it} = -2$.

Herfindahl-Hirschman Index (HHI) in industry i at time t is defined as the sum of the squared market

shares of firms in an industry: $HHI_{it} = \sum_{j,j \in i} \left(\frac{Output_{jt}}{\sum_{j,j \in i} Output_{jt}} \right)^2$.

Market share of the four largest firms (MS4) in industry i at time t is defined as

$$MS4_{it} = \frac{\sum_{j=1,2,3,4,j \in i} Output_{jt}}{\sum_{j,j \in i} Output_{jt}}$$

Export ($Export_{bc}$) in industry i is the share of total exports out of total output, average over pre-crisis period, 1993-1996.

Import ($Import_{bc}$) in industry i is the share of total imported raw materials out of total material inputs, average over pre-crisis period 1993-1996.

External finance ($External\ fin_{bc}$) in industry i is the share of the sum of financing obtained from equity, domestic loans, foreign loans, foreign investment, government investment and capital markets out of total investments, average over pre-crisis period 1993-1996.

Presence of state owned firms ($STpresence_{bc}$) in industry i is the share of output produced by companies that have a majority of state ownership, measured in 1996.

Presence of foreign owned firms ($FRpresence_{bc}$) in industry i is the share of output produced by companies that have a majority of foreign ownership, measured in 1996.

Import monopoly ($Import\ mon_{bc}$) in industry i is the dummy variable, which equals 1 for industries that have one company importing more than 50 percent of total imports, measured in 1996.

Industry size ($Size_{t-1}$) in industry i at time $t-1$ is a logarithm of industry-level real output lagged one period back.

Appendix B: The presence of politically connected firms by 5-digit industry ISIC code

This table presents the distribution of the presence of politically connected firms in Indonesia by 5-digit ISIC rev. 2 industry code, for 1996 – 1997. Based on the type of connection, we separate this distribution for family and cultivated connections. The presence of politically connected firms is measured as a share of output produced by connected firms relative to total output in an industry. We omit industries without connections from the table. All numbers are in percent (%).

ISIC	Industry name	PCpresence	PCpresence, family	PCpresence, business
31152	Manufacture of margarine	100	0	100
31155	Manufacture of other cooking oil made of vegetables and animal oils	100	0	100
35132	Manufacture of synthetic rubber	100	100	0
38323	Manufacture of x-ray apparatus and equipments	100	0	100
38421	Manufacture of railroad equipments	100	0	100
38451	Manufacture of aircraft and components	100	0	100
31168	Manufacture of wheat flour	99.55	8.94	90.61
31122	Manufacture of food primarily made of milk	97.34	0	97.34
35111	Manufacture of basic inorganic chemicals chloride and alkali	96.10	96.10	0
35292	Manufacture of explosives and ammunition	91.69	0	91.69
38295	Manufacture of machinery and equipments n.e.c	86.08	0	86.08
36310	Manufacture of cement	80.67	23.64	57.04
31171	Manufacture of macaroni, spaghetti, noodle and the like	80.60	71.49	9.11
32420	Manufacture of footwear except made of leather, etc.	74.91	0	74.91
31261	Manufacture of prepared food spices	69.69	29.83	39.86
36222	Manufacture of safety glass	68.87	68.87	0
34112	Manufacture of cultural papers	67.85	4.53	63.32
36113	Manufacture of laboratory, electricity/technical wares made of porcelain	63.12	0	63.12
37103	Steel rolling industry	56.20	0	56.20
35299	Manufacture of chemicals n.e.c	53.34	6.05	47.30
38395	Manufacture of electric lamp components	51.89	51.89	0
31184	Manufacture of syrup	50.88	0	50.88
37102	Iron and steel smelting industry	49.71	0	49.71
35224	Manufacture of herbal medicine	47.63	0	47.63
35122	Manufacture of straight fertilizers	41.49	6.71	34.78
35112	Manufacture of basic inorganic chemicals industrial gas	41.39	5.47	35.92
31281	Manufacture of prepared animal feeds	39.92	10.15	29.77
31121	Manufacture of powdered, condensed and preserved milk	39.57	14.72	24.85
31212	Manufacture of sago	38.48	38.48	0
34114	Manufacture of tissues paper	38.40	0	38.40
38322	Manufacture of communication equipments	37.48	0	37.48
38396	Manufacture of electric and telephone cables	36.69	29.96	6.73
34113	Manufacture of industrial papers	32.69	32.69	0
36214	Manufacture of glass containers	30.03	30.03	0
35131	Manufacture of synthetic resins	29.81	11.34	18.48
38399	Manufacture of other electrical apparatus and components	28.42	0	28.42
36211	Manufacture of glass products for household purposes	27.47	27.47	0
38312	Manufacture of electric motors	23.65	23.65	0
38212	Manufacture of internal combustion engine	22.73	4.10	18.63
38431	Manufacture of motor vehicles	22.20	11.78	10.41
35291	Manufacture of adhesive	22.14	12.06	10.07
38139	Manufacture of fabricated metal products n.e.c	21.09	8.39	12.70
38433	Manufacture of motor vehicle component and apparatus	20.82	5.36	15.46
36111	Manufacture of household wares made of porcelain	20.73	0	20.73
35222	Manufacture of drugs and medicines	20.52	0.71	19.81
34111	Manufacture of pulp	19.30	0	19.30

38411	Manufacture of ships / boats	19.24	0	19.24
35117	Manufacture of basic organic chemicals from crude oil, natural gas and coal	19.13	10.37	8.76
31154	Manufacture of cooking oil made of palm oil	18.93	0	18.93
35119	Manufacture of basic chemicals n.e.c	18.62	7.66	10.96
35118	Manufacture of basic organic chemicals resulting special chemicals	18.24	2.32	15.92
31279	Manufacture of other food products n.e.c	17.68	0	17.68
36112	Manufacture of structural materials made of porcelain	16.24	0	16.24
35210	Manufacture of paints, varnishes and lacquers	15.80	15.80	0
38114	Manufacture of kitchen ware made of metal other than aluminum	15.68	15.68	0
38316	Manufacture of other electrical machineries	15.56	0	15.56
35114	Manufacture of basic inorganic chemicals n.e.c	14.74	11.60	3.15
31282	Manufacture concentrate animal feeds	14.48	0.98	13.50
31251	Manufacture of all kinds of chip (shrimp chip, fish chip etc)	14.42	0	14.42
38293	Manufacture of blower, compressor and the like	13.79	13.79	0
38294	Manufacture of air conditioning, refrigerator and the like	12.62	3.50	9.12
34190	Manufacture of products of paper and cardboard n.e.c	12.37	0	12.37
31153	Manufacture of cooking oil made of coconut oil	11.82	0	11.82
31222	Manufacture of processed coffee	11.57	11.57	0
31179	Manufacture of bakery products	11.39	1.61	9.78
31164	Peeling and cleaning of seed other than coffee	11.10	0	11.10
38296	Manufacture of component and part of machinery and equipments n.e.c	10.67	10.67	0
35603	Manufacture of plastic sheets	10.61	10.61	0
37201	Manufacture of non ferrous metal basic industries	10.15	10.15	0
38313	Manufacture of transformer, rectifier and voltage stabilizers	10.11	0	10.11
31141	Manufacture of canned fish and other similar products	8.46	0	8.46
31181	Manufacture of granulated sugar	8.34	8.34	0
34120	Manufacture of boxes made of paper and cardboard	7.69	2.28	5.41
38134	Manufacture of plate working, pressure vessel, steel tank, for industry	7.57	6.87	0.70
38231	Manufacture of metal working machineries	7.34	0	7.34
35593	Manufacture of products of rubber n.e.c	7.22	0.57	6.65
35601	Manufacture of pipes and hose made of plastics	6.98	0	6.98
32122	Manufacture of made up textile for health purposes	5.19	0	5.19
35231	Manufacture of soap and cleaning preparations, including tooth paste	5.09	0	5.09
38324	Manufacture and sub assembly of electronic components	5.05	0	5.05
35116	Manufacture of basic organic chemicals intermediate cyclic, dyes and pigment	5.05	0	5.05
33115	Manufacture of block board, particle board and the like	4.91	4.91	0
34119	Manufacture of paper n.e.c	4.91	0	4.91
38133	Manufacture of fabricated structural steel products	4.89	4.89	0
33111	Sawmills	4.11	4.11	0
33113	Manufacture of plywood	3.84	3.84	0
34200	Printing, publishing and allied industries	3.70	0.44	3.25
31340	Manufacture of soft drinks	3.45	0	3.45
32114	Weaving mills except gunny and other sacks	3.27	0	3.27
33112	Manufacture of molding and building components	2.91	2.91	0
36911	Manufacture of household wares, made of stone	2.59	2.59	0
38432	Manufacture of motor vehicle bodies	2.44	0.43	2.01
38292	Manufacture of lifting and hoisting machineries, tractor, bulldozer and the like	2.40	0	2.40
33212	Manufacture of furniture and fixtures made of bamboo and /or rattan	2.26	2.26	0
38120	Manufacture of furniture and fixtures primarily made of metal	2.24	0	2.24
35606	Manufacture of plastics bags, containers	1.67	0.25	1.42
31151	Manufacture of crude vegetable and animal cooking oil	1.61	0	1.61
31112	Processing and preserving of meat	1.60	1.60	0
39040	Manufacture of toys	1.55	1.55	0
35523	Manufacture of crumb rubber	1.47	1.47	0
32111	Spinning mills	1.40	0	1.40
35511	Manufacture of tire and inner tubes	1.21	1.21	0
38441	Manufacture of motor cycle and motorized tricycles	1.12	1.12	0
35609	Manufacture of plastic products n.e.c	0.99	0	0.99

38131	Manufacture of fabricated structural metal products other than aluminum	0.96	0	0.96
38195	Manufacture of metal pipe and pipe fitting	0.83	0	0.83
31144	Manufacture of frozen fish and other similar products	0.77	0	0.77
38442	Manufacture of motor cycle, motorized tricycle component and apparatus	0.44	0.44	0
38193	Manufacture of all kind of metal containers	0.40	0	0.40
32210	Manufacture of wearing apparel made of textile (garments)	0.36	0	0.36
31249	Manufacture of other food made of soya bean / other nuts	0.31	0.09	0.22
38314	Manufacture of electric panel and switch gear	0.24	0	0.24
36321	Manufacture of structural cement products	0.21	0	0.21
31221	Manufacture of processed tea	0.12	0.12	0

Appendix C:

Table C.1: Additional Descriptive Statistics

		<i>Summary statistics</i>						
		Mean	SD	Med	Min	Max		
	PCpresence	0.10	0.22	0	0	1		
	Size _{t-1}	19.56	2.29	19.77	12.89	24.59		
	Import _{bc}	0.30	0.28	0.24	0	1.00		
	Export _{bc}	0.21	0.23	0.12	0	0.87		
	External finance _{bc}	0.84	0.22	0.92	0	1		
	Import monopoly _{bc}	0.29	0.46	0	0	1		
	FRpresence _{bc}	0.13	0.21	0.03	0	0.98		
	STpresence _{bc}	0.06	0.19	0	0	1		
		<i>Pairwise correlations</i>						
		PCpresence	1	2	3	4	5	6
1	Size _{t-1}	0.13**						
2	Import _{bc}	0.09	0.18***					
3	Export _{bc}	-0.17***	0.19***	0.05				
4	External finance _{bc}	-0.10*	0.19***	-0.09	0.15*			
5	Import monopoly _{bc}	0.09	-0.03	0.32***	-0.02	-0.03		
6	FRpresence _{bc}	0.06	0.15***	0.45***	0.16***	0.09	0.17***	
7	STpresence _{bc}	0.35***	0.02	-0.01	-0.10*	-0.11**	0.04	-0.12**

Note: This table reports the summary statistics and pairwise correlations the presence of politically connected firms, proxied by their market share averaged over 1996 and 1997, and pre-crisis industry characteristics, at 5-digit industry code, in 1996. *** indicates significance at the 1% level, ** - at the 5% level, and * - at the 1% level.