The Political Economy of the Middle Income Trap*

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Abstract

The middle income trap is a political phenomenon. Governments in many middle income countries promote the interests of a small set of firms while erecting barriers to entry by other economic actors. We develop a model of the middle income trap, in which economic favoritism is an equilibrium phenomenon that yields second-best outcomes that are welfare-superior to scenarios with no production (the low income scenario), but fall short of the first-best outcome associated with free entry and open competition (the high income scenario). We provide conditions under which middle income outcomes are politically feasible when the high income outcome is not. Countries that have no politically feasible path to high income can make significant welfare gains even if it means getting stuck at middle income status.

Keywords: middle income, property rights, crony capitalism, economic favoritism, institutions

JEL Classification Codes: H2, N40, O1, O43

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1 Introduction

Both scholars and practitioners (e.g., Gill et al., 2007, Gill and Kharas, 2015, Larson et al., 2016) have posited the existence of a "middle income trap" that prevents many moderate income countries from growing fast enough to achieve high income status. The World Bank (2013) defines a middle income country as one whose GDP per capita falls between 5% and 45% of U.S. GDP per capita, and classifies countries as trapped if they were middle income in 1960 and in 2008. In Figure 1, we replicate that analysis for the year 2022. The figure shows that relatively few countries that were middle income in 1960 are high income today, and most middle income countries remained in that category with some even falling to low income.[1]

This pattern is surprising because neoclassical growth theory going back to Solow (1956) predicts the rapid convergence of middle income countries to their higher income counterparts (see also Barro, 1997). Although there is a rich tradition that explains the failure of convergence by positing the existence of various developmental traps modeled as equilibrium points in a neoclassical growth model (e.g. Barro and Sala-i Martin, 2004, pp. 74-77), to our knowledge there is no theory of the middle income trap that produces it as an equilibrium that lies between a low income (poverty) trap equilibrium and a high income steady state.

We provide such a theory. We claim that the middle income trap is a political equilibrium. The political economy of many countries that rapidly achieved middle income status but have failed to grow further at similar rates is characterized by a system of economic favoritism by which the state protects and promotes the economic interests of some firms while restricting market access for others. Although these policies engender a system of rent protection and cronyism that act as impediments to further development, they permit a country to grow out of poverty to middle income status.

Figure 2 provides some descriptive evidence for the lower economic competition in middle income countries that is implied by these policies. Using data from Besley et al. (2021), the left panel of the figure shows that market concentration in industry and services (sectors that constitute the largest

[1] In an alternative method, Eichengreen et al. (2013) identify the middle income trap by looking at growth slowdowns and find that slowdowns occur in the neighborhood of $10,000-$11,000 per capita, and $15,000-$16,000 per capita, all are measured in 2005 constant international prices PPP; c.f. Agénor (2017) who critiques this method by arguing that slowdowns do not necessarily imply a middle income trap, and Patel et al. (2021) who show that some middle income countries that were considered to be trapped have actually been growing faster than richer countries since the mid-1990s.

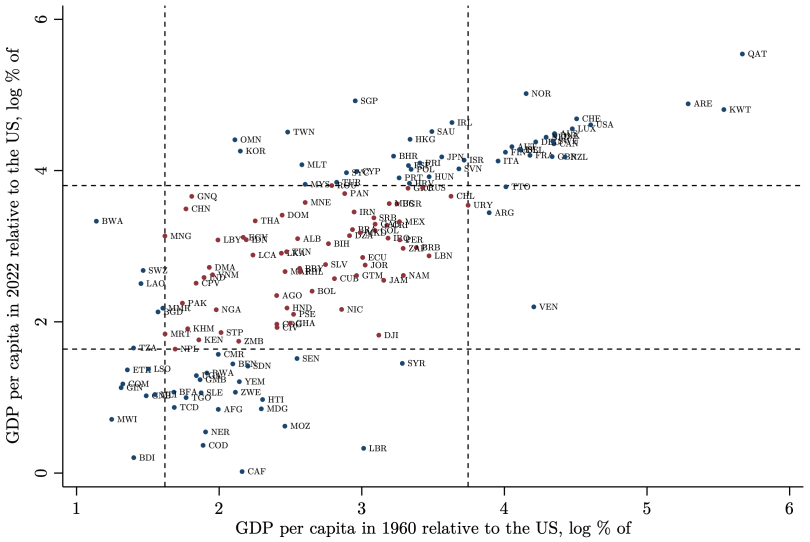

Figure 1: Log of GDP per capita in 1960 as a share of US GDP per capita in 1960 plotted against Log of GDP per capita in 2022 as a share of US GDP per capita in 2022. Dashed lines are 5% and 45% levels of U.S. GDP per capita in the corresponding year. Data are from the Maddison Project Database. Only countries with a population of at least 1 million in 2022 are in the sample.

share of the economy across all income-categories) is higher in middle income countries than it is in low income countries or high income countries. The right panel of the figure shows that there are many fewer firms in middle income countries than in high income countries, and many fewer firms in low income countries than in middle income countries.

These features are consistent with the idea that cronyism and favoritism have stifled economic competition in middle income countries, where many firms are allowed to operate but with high levels of market concentration and monopoly power. Our discussions of the political economies of Thailand, Mexico, and Indonesia in this paper provide further and more detailed qualitative evidence of this kind of cronyism and favoritism in the recent histories of three present-day middle income countries. Other accounts that are consistent with our theory include Acemoğlu and Üçer's (2020) analysis of institutional reversal in Turkey after 2007, Kang's (2002) analysis of

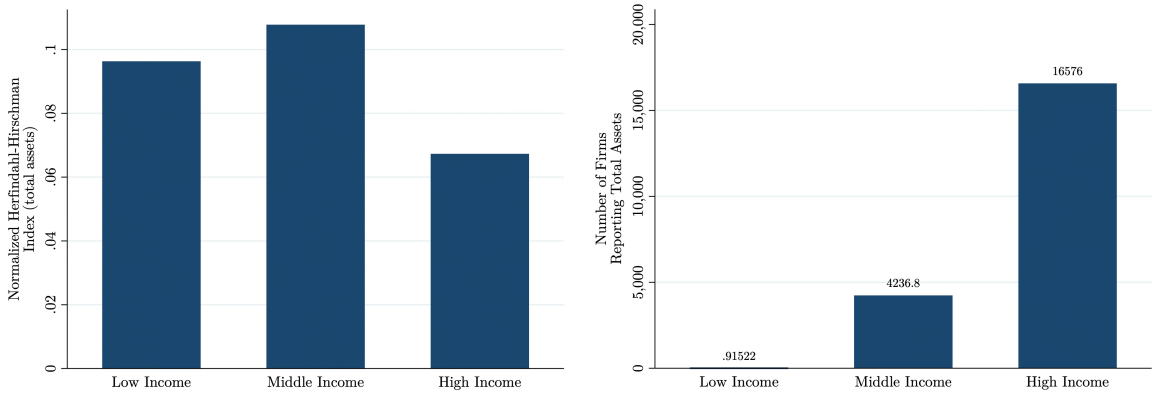

Figure 2: Normalized Herfindahl-Hirschman index for market concentration in industry and services (left) and average number of firms (right) by income categories of countries. Averages are across country-NACE subsectors averaged within sector, then averaged across countries by income group. Data are from Besley et al. (2021).

cronyism in Korea and the Philippines, and Aslund's (2019) treatment of the same in Russia.[2]

Our argument contrasts with existing explanations for the middle income trap. The literature on conditional convergence posits that the failure of lower income countries to catch up quickly to high income countries could be due to differences in the availability of factors of production such as human and financial capital (see, e.g., Barro, 1991, 1997, Demirgüç-Kunt and Levine, 2001, Glaeser et al., 2004). Following this line of reasoning, explanations for the middle income trap have focused on economic rather than political factors, claiming for example that low levels of higher education and R&D in middle income countries have slowed economic growth (e.g. Aiyar et al., 2013, Gill et al., 2007, Eichengreen et al., 2013).[3]

In contrast to these arguments, our theory of the middle income trap is centered on the politics of middle income countries. We build on existing

[2]In addition, in his 2014 Lalit Doshi Memorial Lecture, Raghuram Rajan (2014) criticizes the Indian government's policies of economic favoritism that have stifled free-market competition, warning that India may be falling into a middle income trap as well, while Rajan and Zingales (2004) warn of the costs of crony capitalism more generally.

[3]An exception is Doner and Schneider (2016) who emphasize the role of politics but do not develop a model of how the middle income trap arises due to political incentive problems. Another paper by Felipe et al. (2012) links the middle income trap to trade patterns and policy, but does not attribute these policies to politics.

political economy models surveyed thoroughly by Besley and Ghatak (2010) and Acemoglu (2006) in which a development trap arises as a political equilibrium. Much of this literature, however, theorizes about development in binary terms. It focuses on two kinds of equilibria—high income equilibria in which the state protects the property rights of investors, and low income equilibria in which it does not. Our contribution differs in that our model features a third kind of equilibrium—a middle income equilibrium—that is qualitatively distinct from both high and low income equilibria.[4]

An important policy implication of our theory is that if there is no politically feasible path from low to high income, then it is suboptimal to forgo the welfare gains that could be generated by transitioning to middle income even when this transition involves cronyist policies.

To highlight this point, consider for example the cases of Indonesia and Madagascar in the 1970's and 1980's. In 1970, both were low-income countries, with economies reliant on agriculture, mining, and textiles. The World Bank estimates that in 1970 Madagascar's GDP per capita was more than twice as high as Indonesia's—$167 per capita, compared to Indonesia's $79. During the next two decades, however, Indonesia's authoritarian ruler Suharto launched a period of rapid economic growth that benefited his regime by engaging in substantial economic favoritism, granting monopoly power to a number of closely connected firms, and setting up a system of cronyism that became a durable characteristic of Indonesian political economy lasting to this day. Meanwhile in Madagascar, the government of Admiral Didier Ratsiraka protected the property rights of no one. Ratsiraka nationalized all firms with French ties, as well as all import-export companies, banks, and insurance companies, while adopting a policy of state-led industrialization modeled on the regime's closest ally—North Korea.

By 1997, near the end of the Suharto regime, Indonesia's GDP per capita had increased over ten-fold, to $1054 while Madagascar's GDP per capita, at $288 per capita, had not even doubled. Today, the average Indonesian is more than nine times richer than the average Madagascan, and Indonesia fares better than Madagascar on a number of other development indicators as well, including adult literacy and life expectancy. Indonesia's human

[4]Even the models of Acemoglu and Robinson (2000) and Acemoglu and Robinson (2006) in which the state engages in economic favoritism by protecting the monopoly rents of incumbent firms do not explain the political economy of middle income countries as distinct from those of both low and high income. The model in Razo (2008) in which politicians interact in a network of firms shares many qualitative features with ours, but in his model firms cooperate to provide mutual protections when the state fails to do so while in our model there is no alternative to protection by the state.

development index (HDI) in the year 2021 (reported in the 2022 UNDP Human Development Report) was 0.705, while Madagascar's was 0.501. Their inequality-adjusted HDIs were 0.585 and 0.367 respectively.

The rest of this paper is organized as follows. In Sections 2 and 3 we develop and analyze the model. In Section 5 we discuss the growth experiences of three middle income countries: Indonesia, Thailand and Mexico. Section 6 concludes with policy implications.

2 The Model

2.1 Economy

There is a continuum of workers of unit mass, a low productivity firm L, and a high productivity firm H. The firms can either be operational or non-operational. A firm that is non-operational earns a profit of 0.

Workers may work for themselves in the informal economy or for a firm that is operational in the formal sector. Each worker has a type θ that represents his income from being self-employed in the informal sector. We assume that the distribution of types is a Pareto distribution $F(\theta) = \theta^\phi$ on support normalized to $[0, 1]$ where $0 < \phi \leq 1$.[5]

Each operational firm $j \in \{L, H\}$ posts a wage rate w_j, and all workers work for the firm offering the higher wage, provided it is higher than their outside option θ. Those with a better outside option are self-employed. If the firms post the same wage, then workers can work for either firm. If firm j is operational, it can produce $A_j \ell_j$ units of output by employing ℓ_j units of labor, where $0 < A_L < A_H < 1$ are the productivity levels of the firms. Thus, firm j's profit is

$$\Pi_j = A_j \ell_j - w_j \ell_j$$

If only one firm j is operational, then it is a monopoly employer (monopsony in the labor market) and optimally chooses wage

$$w_j^* = \frac{\phi}{1+\phi} A_j \tag{1}$$

so that labor employed is $\ell_j^* = (w_j^*)^\phi$ and its profit is

$$\Pi_j^* := \frac{\phi^\phi}{(1+\phi)^{1+\phi}} A_j^{1+\phi} \tag{2}$$

[5] Actually, when $\phi = 1$ this is the uniform distribution on $[0, 1]$, which we allow.

Note that we have assumed that even a monopoly employer cannot wage-discriminate, and that labor supply meets labor demand.[6]

If both firms operate, then they are Bertrand competitors in the labor market. By standard arguments detailed in Appendix A, the labor market clearing wage rate in this case is either the rate that would give the low productivity firm a zero profit if it employed any positive mass of workers, i.e. $w = A_L$, or the high productivity firm's monopoly wage rate, i.e. $w = w_H^*$, the higher of the two.

To ensure that there is a wedge between the competition equilibrium and the high productivity firm monopoly equilibrium, we assume throughout that

$$\frac{\phi}{1+\phi} < \frac{A_L}{A_H} \tag{A1}$$

When this is the case wages are higher under the competition equilibrium and thus more workers are employed in the formal economy.

In the proposition below, we summarize the main claims above.

Proposition 1. *In a labor-market clearing equilibrium:*

(i) If only one firm j is operational then the labor market clears at wage rate w_j^* given in (1) *and the firm's profit is Π_j^* given in* (2)*.*

(ii) If both firms are operational then the labor market clears at wage rate $w_{LH}^* = A_L$, firm L does not produce and hence makes a zero profit, and firm H makes a profit $\Pi_{LH}^* = (A_H - w_{LH}^*)(w_{LH}^*)^{\phi}$.

Proof. See Appendix A. ■

Since $A_j < 1$ for $j \in \{L, H\}$, some workers will work in the informal sector given that all of the possible equilibrium wage rates in the proposition above are below 1. Also note that $\Pi_H^* > \Pi_{LH}^*$ so that aggregate profits under the high productivity firm monopoly are higher than aggregate profits under competition.

Given a market clearing wage rate $w > 0$, define worker surplus as the net wages earned by workers above their outside option of working in the

[6] A foundation for this assumption is given by the Coase conjecture, which implies that wage discrimination would not be possible when workers have private information about their outside options and firms can only screen workers over time by progressively increasing wage offers, as then workers would have an incentive to wait to accept a higher wage rather than a lower wage. See Gul et al. (1986) for game theoretic foundations.

informal economy:

$$WS(w) = \int_0^w (w - \theta) dF(\theta) = \frac{w^{1+\phi}}{1+\phi}.$$

Because this is increasing in formal sector wages, worker welfare is highest under labor market competition, second highest when the high productivity firm is a monopoly, third highest when the low productivity firm is a monopoly, and lowest when neither firm is operational. Thus,

$$WS(w^*_{LH}) > WS(w^*_H) > WS(w^*_L) > WS(0) \tag{3}$$

which follows from $w^*_{LH} > w^*_H > w^*_L > 0$. Note that worker surplus takes the value 0 when all workers work in the informal sector, corresponding to a situation in which formal sector wages are $w = 0$.

As for aggregate income, given that only the high productivity firm produces by hiring workers under wage competition, we can write aggregate income, under both monopoly and competition as a function of the wage w that only the firm j that produces pays its workers, along with this firm's aggregate productivity, A_j:

$$Y(w, A_j) = A_j w^\phi + \int_w^1 \theta dF(\theta) = A_j w^\phi + \frac{\phi}{1+\phi}\left(1 - w^{1+\phi}\right)$$

As with worker surplus, this formula also characterizes aggregate income when neither firm is operational in the formal economy, in which case wages in the formal sector are $w = 0$ and aggregate income is $\phi/(1+\phi)$ for both $j \in \{L, H\}$ — the income generated from all workers working in the informal economy. The expression for aggregate income above is increasing in w for $A_j > w$, since its derivative in w is $\phi(A_j - w)w^{-1+\phi}$. It is also increasing in A_j. As a result, we have:

$$Y(w^*_{LH}, A_H) > Y(w^*_H, A_H) > Y(w^*_L, A_L) > Y(0, A_j), \text{ for } j \in \{L, H\} \tag{4}$$

Given previous observations, the first inequality follows from $A_H > w^*_{LH} > w^*_H$. The second follows from $A_H > w^*_H > w^*_L$ and then $A_H > A_L$. Finally, the third follows from $A_L > w^*_L > 0$ and the fact that $Y(0, A_H) = Y(0, A_L)$.

Proposition 2. *Worker welfare WS and aggregate income Y are both highest under competition between the firms, then under high firm monopoly followed by low firm monopoly, and lowest when no firm is operational.*

2.2 Politics

We consider a repeated interaction between an incumbent ruler and the two firms. Periods are discrete and indexed by $t = 0, 1, 2, ..., \infty$. We take as given that the labor market clears as per Proposition 1 in each period so that the workers are not part of the game, and the earnings of any firm operational in any period are its labor-market equilibrium profits described in the proposition. As per the proposition, a firm's earnings depend on whether the other firm is also operational.

At the start of the game, the ruler decides which firms to grant licenses to, and at the start of each period he decides whether or not to renew any active licenses. Only firms that have a license can operate. If no firms are operational, then the period ends immediately with the firms each receiving a zero profit and the ruler receiving a payoff of R, reflecting other political rents from holding office.

However, if at least one firm is operational then in each period that the ruler is in power, he sets tax rates $\tau_j \in [0, 1]$ on the profit of the operating firm $j \in \{L, H\}$ that earns a positive profit. Simultaneously with the ruler's tax decision, the operating firm that makes a positive profit decides whether or not to support the ruler. (Recall from Proposition 1 that if both firms are operational, only firm H earns a positive profit, so the ruler is able to tax only this firm and only this firm decides whether or not to support the ruler.) If the ruler has the support of this firm, then the period ends with firms receiving their net of tax profits and the ruler collecting the tax revenue in addition to political rents R.

If the firm that earns a positive profit does not support the ruler, however, then with some positive probability the ruler is ousted from office at the end of the period—e.g., in a political rebellion in which the firm sides with the opposition. When firm $j \in \{L, H\}$ is a monopoly and does not support the ruler, then the ruler is ousted with probability $q_j > 0$. When both firms are operational and the high firm does not support the ruler then the ruler is ousted with probability $q_{LH} > 0$.

Whether the ruler remains in office or is ousted at the end of the period, he collects the taxes he sets in the current period in addition to that period's political rents R, prior to the period ending.

If the ruler is ousted, then one of three events occurs. First, with probability p_H he may be replaced by another ruler who is committed to allowing only firm H to operate in every subsequent period and to a tax rate $\hat{\tau}_H < 1$ on the firms' profits. Second, with probability p_L he may be replaced by a ruler who is committed to allow only firm L to operate in every subsequent

period and to a tax rate $\hat{\tau}_L < 1$ on the firms' profits. These two events correspond to (unmodeled) rulers coming into power with "connections" to each of the two firms.

Third, with probability $p_{LH} = 1 - p_L - p_H$ he may be replaced by a regime that is committed to allowing both firms to operate in every subsequent period, with competition between them, and a fixed tax rate of $\hat{\tau}_{LH} < 1$ on firms' profits in every period. In this case, firm H earns a payoff of $(1 - \hat{\tau}_{LH})\Pi^*_{LH} > 0$ in each subsequent period while firm L earns a zero profit in each subsequent period. These three events described so far correspond to absorbing states in which the game effectively ends.

All players share a common discount factor β.

2.3 Remarks on the Model

As the model abstracts from many features of political and economic reality, we now provide a discussion of its simplifying assumptions and their roles in our analysis.

First, we have labeled workers not working for either firm as working in the informal sector to indicate that their activities are beyond the regulation of the ruler—the ruler does not collect taxes from these workers or the businesses that employ them. The only source of revenue for the government in our model is from firms that operate in the formal economy, which is an appropriate assumption for many countries in which government lacks the capacity to collect taxes from many sectors (see, e.g. Besley and Persson, 2009). However, the assumption plays no critical role in our analysis. Our main results would continue to hold even if we expanded the government's fiscal reach to these sectors.

Second, we have assumed that the ruler stays in power if he has the support of the operating firms and is vulnerable to overthrow only when he does not have this support. We make this assumption to keep the accounting simple, but our main results carry over to the case where the ruler is vulnerable to overthrow even when all operating firms support him, so long as his odds of losing power are higher when he does not have the support of the firms than when he does.

Third, while we have assumed that rulers can restrict market entry by not granting permission to operate, there are other ways that rulers can effectively shut firms out of the market. For example, the ruler may control scarce inputs such as capital or natural resources that are essential for production, and only grant these inputs to favored firms. Alternatively, the ruler may decline to protect the property rights of certain firms from private

expropriation, either by criminals or government officials. Either way, the result is the same as not granting a license: the non-favored firm cannot operate at a profit.

Fourth, our model is simplified to the case of only two firms working in a single industry but our results carry over to the case of many firms operating in different industries provided each operating firm has some political influence in the ruler's likelihood of survival. This implies the ruler will consider whether or not to grant a license to firms based on whether they can be trusted to not aid the opposition.

Finally, to simplify the analysis, we have assumed that once the ruler is overthrown, the game ends with unmodeled rulers coming to power who are committed to grant permanent monopoly licenses to one of the two firms, or a transition to a competitive regime in which both firms operate. In Appendix B, we describe a way to provide strategic microfoundations for all of these continuation paths.

3 Political Equilibrium

Our solution concept for analyzing the political game is subgame perfect equilibrium (SPE).

Before we start our analysis, we introduce the assumption that the ruler's political rents R are large enough that he would prefer not to give any firm an operating license than to expose himself to the risk of overthrow. If the ruler does not allow any firm to operate, then he remains in power forever and his payoff is R. If he allows a firm to operate that could act to overthrow him whenever it had the chance, then his payoff is at best:

$$\max\left\{(1-\beta)(\overline{\Pi}+R)+\beta(1-\underline{q})R,\ \frac{1-\beta}{1-\beta(1-\underline{q})}(\overline{\Pi}+R)\right\}$$

$$\text{where}\ \ \underline{q} := \min\{q_L, q_H, q_{LH}\}$$

$$\text{and}\ \ \overline{\Pi} := \max_{\tau\in[0,1],\Pi\in\{\Pi_H^*,\Pi_L^*,\Pi_{LH}^*\}} \tau\Pi$$

The first expression inside the brackets bounds the payoff to the ruler if he is exposed to overthrow only once and then does not renew any licenses from that point on, if he survives in office. The second expression bounds the payoff in the case where the ruler is continually exposed to the same risk of overthrow in every period that he has survived in office. It is routine to

verify that if

$$R > \frac{1-\beta}{\beta}\frac{\overline{\Pi}}{\underline{q}} \tag{A2}$$

then R exceeds the first expression. Moreover, when this inequality is satisfied the first expression exceeds the second one. Thus, under this assumption, the ruler would prefer to shut out all firms from operating than face the risk of being overthrown even just once in any period. We maintain this assumption throughout the analysis. It amounts to saying that the benefit of remaining in power is larger than any financial gains that would accrue from empowering one's potential enemies.

3.1 Low Income Equilibria

In the setting we have described, it is clear that in a history-independent equilibrium of the game the ruler does not grant licenses to any firm.

First consider the case of providing a license to only one of the firms $j \in \{L, H\}$. In a history-independent equilibrium, the firm and ruler make the same choices in every period. The ruler's payoff from setting any tax rate $\tau_j < 1$ would be $(1-\beta)(\tau_j \Pi_j^* + R) + \beta V$ where V is his history-independent continuation value. Here, the ruler would have an incentive to deviate to $\tau_j = 1$, since this deviation does not affect V, given it is history-independent. Thus, in a history-independent equilibrium, it must be that the ruler sets $\tau_j = 1$ in every period. Accordingly, the firm's best-response is to withhold support for the ruler, since supporting would generate a payoff of 0 while not supporting would generate a payoff of at least $\beta q_j p_j (1-\hat{\tau}_j)\Pi_j^* > 0$. A similar conclusion holds if we assume that both firms are operating. Thus, in any history-independent equilibrium the ruler must run the risk of overthrow were he to grant an operating license, while assumption (A2) implies that it would be better to not allow any firm to operate. This also shows that a history independent equilibrium exists with the unique feature across all such equilibria that no firm is ever granted a license on the path of play.

Proposition 3. *There is a history-independent equilibrium and in any such equilibrium the ruler is expected to fully expropriate (i.e. set $\tau_j = 1$ on any operating firm j that earns a positive profit) if he ever has the choice; some operating firm is expected to not support him; and, consequently, the ruler does not grant a license to either firm in any period.*

This equilibrium delivers the minmax values to both the firms and the ruler in any continuation game that begins at the start of a period. On any

path in which the ruler granted a license to at least one of the firms, the worst equilibrium punishment that could be imposed on a firm for not supporting the ruler would be to not grant it a license ever again. Likewise, if the ruler ever deviated from an equilibrium path, the worst credible punishment that could be imposed on him is for a history-independent equilibrium to be played starting in the next period, in which no operating firm is ever expected to support the ruler again. These punishments serve as the basis of our analysis of the conditions required to support other (higher income) outcome paths in some equilibrium of the political game.

3.2 High Income Equilibria

Aggregate income and worker surplus are highest under an outcome in which the ruler gives licenses to both firms in every period, leading to competition between them. We now study the necessary and sufficient conditions for such a *competitive outcome path* to be supported in equilibrium under which both firms operate in all periods of the game. For simplicity, we focus on stationary outcome paths in which the ruler sets the same tax rates every period, and firm H (the only one that makes a positive profit) makes the same decision (support or not support the ruler) in every period. We will refer to an equilibrium that supports a stationary competitive outcome path as a *high income equilibrium*.

A stationary competitive outcome path may involve the high productivity firm H not supporting the ruler in every period, in which case the ruler would prefer to set the maximum possible tax of $\tau_H = 1$ whenever possible. But such paths are ruled out by assumption (A2), as the ruler would rather not grant any licenses than run the risk of permanently losing power and his political rents. Thus, there is no "politically unstable" equilibrium in which the ruler grants a license despite not receiving political support from the firm: if a stationary high or low productivity firm monopoly path is the outcome of an equilibrium, the firm has to support the ruler in every period. We refer to such paths as *politically stable* paths.

To state the main result, we define the continuation value to firm j following the removal of a leader by

$$\mathbf{U}_j := p_j(1-\hat{\tau}_j)\Pi_j^* + p_{LH}(1-\hat{\tau}_{LH})\mathbf{1}_{j=H}\Pi_{LH}^*.$$

Proposition 4. *There is a high income equilibrium if and only if*

$$q_{LH} \leq \beta \frac{\Pi_{LH}^*}{\mathbf{U}_H} =: \overline{q}_{LH}$$

Proof. By assumption (A2) and the argument above, if a stationary competitive outcome path is the outcome of an equilibrium, then it must be politically stable. Let $\tau_H = \tau$ be the stationary tax rate on firm H implemented by the ruler on such a path (recall that L makes a zero profit every period on such a path). Thus $\tau\Pi^*_{LH} + R$ is the ruler's on path time averaged payoff and $(1-\tau)\Pi^*_{LH}$ is the firm's. The ruler has no profitable deviation from the on-path stationary tax rate if

$$\tau\Pi^*_{LH} + R \geq (1-\beta)[\tilde{\tau}\Pi^*_{LH} + R] + \beta\tilde{V},$$

where $\tilde{V}$ is the continuation value following the deviation from to $\tilde{\tau} \neq \tau$. As noted above, the worst equilibrium punishment for the ruler from deviating from the path is for the history-independent equilibrium of Proposition 3 to be played from the subsequent period onwards, since this path gives him his minmax value. Thus, the lowest value that $\tilde{V}$ can take is R, and the best deviation tax rate is $\tilde{\tau} = 1$. This implies that a necessary condition for the path to be an equilibrium path is

$$\tau \geq 1 - \beta. \tag{5}$$

Firm H has no profitable deviation from the path if

$$(1-\tau)\Pi^*_{LH} \geq (1-\beta)(1-\tau)\Pi^*_{LH} + \beta[q_{LH}\mathbf{U}_H + (1-q_{LH})U]$$

where U is the firm's continuation value if the incumbent ruler survives office. Since the worst equilibrium punishment for deviating by not supporting the ruler is for the current ruler (if he survives office) to play the history-independent equilibrium of Proposition 3 from the following period on, we can set $U = 0$. This implies that a necessary condition for the firm to not have a profitable deviation from the path is

$$\tau \leq 1 - q_{LH}\frac{\mathbf{U}_H}{\Pi^*_{LH}}. \tag{6}$$

A necessary and sufficient condition for there to exist a tax rate τ that simultaneously satisfies both inequalities (6) and (5) is the inequality stated in the proposition.

Finally, the inequality stated in the proposition is both necessary and sufficient to support the competitive outcome path because the ruler is trivially never willing to deviate from the path by not renewing firm H's license under the same history-independent equilibrium punishment. The continuation payoff that the ruler gains from deviating in this case would be R,

while staying on the path would give him $\tau\Pi^*_{LH} + R$ which is strictly larger than R since $\tau > 0$ for any τ satisfying (5). ■

Our model has a two-sided commitment problem under which the ruler may be tempted to expropriate an operating firm if the fraction of profits the firm shares with the ruler is too low; the firm may concurrently be tempted to withdraw support from the ruler if the same share is too high. These two commitment problems are non-binding when the portion of the firm's profit accruing to the ruler is at least the threshold given in equation (5) and at most the threshold given in equation (6). If these thresholds are incompatible with each other then there is no way to simultaneously resolve these two commitment problems.

However, since the threshold $\overline{q}_{LH}$ may not be smaller than q_{LH}, it may be impossible to simultaneously resolve these two commitment problems. Note that

$$\overline{q}_{LH} = \beta \frac{1}{p_H(1-\hat{\tau}_H)\frac{\Pi^*_H}{\Pi^*_{LH}} + p_{LH}(1-\hat{\tau}_{LH})}$$

This shows that since the profit wedge Π^*_H/Π^*_{LH} can be arbitrarily large, the threshold $\overline{q}_{LH}$ can be arbitrarily small, and so there is some threshold value of the profit wedge Π^*_H/Π^*_{LH} at which the inequality $q_{LH} \geq \overline{q}_{LH}$ stated in the proposition fails even if it can be satisfied when the profit wedge Π^*_H/Π^*_{LH} is small. In this case, a high income equilibrium is politically feasible provided that the ruler and high productivity firm are sufficiently forward looking, meaning β is large enough.

3.3 Middle Income Equilibria

If the condition stated in Proposition 4 cannot be satisfied, then no high income equilibrium exists. However, there may exist an equilibrium that sustains a monopoly outcome path under which the ruler grants an operating license to one (but not both) of the firms in every period.

Again, for simplicity, we focus on stationary outcome paths. Such a path is a *high (or H) firm monopoly* (resp. *low (or L) firm monopoly*) outcome path if the high (resp. low) productivity firm operates as a monopoly in every period. We refer to an equilibrium that supports a high (resp. low) firm monopoly outcome path as a *high (or H)* (resp. *low (or L)*) *middle income equilibrium* (though of course a high firm monopoly outcome generates higher income than a low firm monopoly outcome).

Proposition 5. *For both $j = L, H$, there exists a j-middle income equilibrium if and only if*

$$q_j \leq \beta \frac{\Pi_j^*}{\mathbf{U}_j} =: \overline{q}_j$$

Proof. As in Proposition 4 every middle income equilibrium outcome must be politically stable. Again, setting $\tau_j = \tau$ to be the stationary tax rate implemented by the ruler on such a path in which firm j is operational as a monopoly in every period, we can show using similar arguments that on the ruler side we must have $\tau \geq 1 - \beta$, while on the firm side we must have

$$\tau \leq 1 - q_j \frac{\mathbf{U}_j}{\Pi_j^*}.$$

Combining these two inequalities gives us the inequality stated in the proposition. And, as in Proposition 4, this inequality is both necessary and sufficient to support some firm j monopoly outcome path: the ruler would never want to deviate from the path by not renewing the license when the deviation is met by the severest equilibrium punishment. ■

The same two-sided commitment problem that features in Proposition 4 also features in Proposition 5, but it is possible that a j-middle income equilibrium exists for $j \in \{L, H\}$ when a high income equilibrium does not. To make this point, suppose that

$$q_{LH} = q_H = q_L = q, \tag{7}$$

which is the assumption that the threat to the ruler from not having the support of the profit-making firm is the same across high firm monopoly, low firm monopoly, and competition. Since $\overline{q}_{LH} < \overline{q}_H$ (because $\Pi_{LH}^* < \Pi_H^*$), if $q \in (\overline{q}_{LH}, \overline{q}_H]$ then a high middle income equilibrium exists even when a high income equilibrium does not. Similarly, it is possible that $\overline{q}_L > \overline{q}_H$, which occurs when

$$p_H(1 - \hat{\tau}_H) + p_{LH}(1 - \hat{\tau}_{LH}) \frac{\Pi_{LH}^*}{\Pi_H^*} > p_L(1 - \hat{\tau}_L)$$

which in turn happens, for example, if

$$p_L = p_H, \ \hat{\tau}_L = \hat{\tau}_H, \text{ and } p_{LH}(1 - \hat{\tau}_{LH}) > 0. \tag{8}$$

If this is the case and $q \in (\overline{q}_H, \overline{q}_L]$ then a low middle income equilibrium exists when a high middle income equilibrium does not.

Thus, to summarize, if the assumptions in (7) and (8) hold, then

$$\overline{q}_{LH} < \overline{q}_H \leq \overline{q}_L,$$

and there is a parameter region in which none of the other kinds of equilibria exist except the low income equilibrium (when $q > \overline{q}_L$), one in which low middle income equilibria exist but high middle income equilibria and high income equilibria do not (when $\overline{q}_H < q \leq \overline{q}_L$), one in which high middle income equilibria and low middle income equilibria exist but high income equilibria do not (when $\overline{q}_{LH} < q \leq \overline{q}_H$), and of the four kinds of equilibria that we have considered exist (when $q \leq \overline{q}_{LH}$).

Thus, a lower income equilibrium may be politically feasible when a higher income equilibrium is not; and when one of the middle income equilibria is feasible when no high income equilibrium is, then a middle income equilibrium is necessarily the best politically feasible equilibrium.

We can also have other situations. When $q_{LH} < \min\{q_L, q_H\}$, we can have a situation in which a high income equilibrium exists when a high- or low-middle income equilibrium does not; this requires $q_{LH} \leq \overline{q}_{LH}$ and $q_j > \overline{q}_j$ for $j \in \{L, H\}$. When $q_H < q_L$ we have a situation in which a high middle income equilibrium exists but a low middle income equilibrium does not exist; this requires $q_H \leq \overline{q}_H$ but $q_L > \overline{q}_L$. And so on.

Finally, if $q_s > \overline{q}_s$ for all $s \in \{L, H, LH\}$ then none of the middle income equilibria exist, nor does the high income equilibrium. In this case, the only outcome that is politically feasible in the set of outcomes that we have analyzed is the low income outcome.

Which outcomes are politically feasible depends on the parameters, and critically the parameters q_L, q_H and q_{LH} that capture the threats and risks that rulers face from not having the support of the profit-making firm.

3.4 Ruler-Optimal Equilibria

When both a high-middle income equilibrium and a low-middle income equilibrium are politically feasible (because $q_L \leq \overline{q}_L$ and $q_H \leq \overline{q}_H$) the ruler may prefer a low-middle income equilibrium. To see why, note that the ruler-optimal high-middle income equilibrium gives the ruler a payoff $R + \Pi^*_H - q_H \mathbf{U}_H$ while the ruler-optimal low-middle income equilibrium gives him a payoff $R + \Pi^*_L - q_L \mathbf{U}_L$. The latter may be strictly larger than the former if $q_L \mathbf{U}_L$ is small while $q_H \mathbf{U}_H$ is large, even though $\Pi^*_H > \Pi^*_L$. The intuition is clear: even if the high productivity firm earns more than the low firm, if the ruler faces a lower threat from the low firm, the ruler

would be able to extract a larger share of the lower firm's profits, which could more than make up for the difference.

In fact, the ruler may also prefer a low-middle income equilibrium to every high income equilibrium, or a high-middle income equilibrium to both every low-middle income equilibrium and every high income equilibrium, etc. To characterize the ruler-preferred equilibrium let us define $\mathcal{E}_{LH}$, $\mathcal{E}_H$, $\mathcal{E}_L$ and $\mathcal{E}_0$ respectively to be the sets of high income equilibria, high-middle income equilibria, low-middle income equilibria, and low income equilibria. Let $\mathcal{E}$ be the union of these four sets.

Proposition 6. *The ruler-optimal equilibrium in the set $\mathcal{E}$ is*

(i) an equilibrium in the set $\mathcal{E}_0$ if and only if $\mathcal{E} = \mathcal{E}_0$.

(ii) an equilibrium in the set $\mathcal{E}_s$, with $s \in \{L, H, LH\}$ if and only if $q \leq \overline{q}_s$ and for both $-s \in \{L, H, LH\}\backslash\{s\}$ either $q_{-s} > \overline{q}_{-s}$ or

$$q_{-s} \leq \overline{q}_{-s} \text{ and } \left(1 - \beta\frac{q_{-s}}{\overline{q}_{-s}}\right)\Pi^*_{-s} \leq \left(1 - \beta\frac{q_s}{\overline{q}_s}\right)\Pi^*_s, \text{ both hold.}$$

Proof. For part (i), in any low income equilibrium, the ruler's payoff is R while in any of the other three sets of equilibria it is $R + \tau\Pi$ where $\Pi > 0$ is the profit of the profit-making firm and $\tau \geq 1 - \beta > 0$. So a low income equilibrium is ruler-optimal in $\mathcal{E}$ if and only if $\mathcal{E} = \mathcal{E}_0$.

For part (ii), the ruler-optimal equilibrium in $\mathcal{E}$ is an equilibrium in $\mathcal{E}_s$ if and only if for both $s \in \{L, H, LH\}\backslash\{s\}$, either $\mathcal{E}_{-s}$ is empty or if it is nonempty but the ruler-optimal equilibrium in $\mathcal{E}_s$ has a higher ruler-payoff than the ruler-optimal equilibrium in $\mathcal{E}_{-s}$. The ruler optimal equilibrium in $\mathcal{E}_s$, for $s \in \{L, H, LH\}$, is one in which the ruler sets the maximum politically feasible tax rate in each period, which is $\tau_s = 1 - \beta(q_s/\overline{q}_s)$. Substituting this into the expression for the ruler's best payoff in $\mathcal{E}_s$ gives

$$R + \tau_s\Pi^*_s = R + \left(1 - \beta\frac{q_s}{\overline{q}_s}\right)\Pi^*_s.$$

Then, comparing these ruler-best payoffs across equilibrium sets gives the final inequality in the proposition. ■

The political distortion in our model comes from the fact that the ruler's ordering over equilibria need not coincide with the ordering of equilibria according by aggregate income or worker surplus.

Proposition 6 implies that even when a high income equilibrium is politically feasible (i.e. exists), the ruler may prefer a middle income equilibrium. In fact, the ruler may even prefer a low-middle income equilibrium to every high-middle income equilibrium. The key paremeters that drive such preferences are q_L, q_H, and q_{LH}. Not only do these parameters contribute to determining which equilibria exist, they also contribute to determining which equilibria the ruler prefers among those that do exist. They measure the threat that the ruler faces from each of the firms in different scenarios. If the ruler finds the potential power of the high firm to be too threatening (meaning that q_H and q_{LH} are large) but the potential power of the low firm to be much less threatening (meaning that q_L is small) then the ruler will prefer to do business with the low firm rather than the high firm.

In particular, Proposition 6 implies that under the assumptions in (7) and (8) when all three kinds of equilibria exist the ruler always prefers the high-middle income equilibrium to the high income equilibrium and will prefer a low middle income equilibrium to the high middle income equilibrium if and only if $\Pi_L^* - q\mathbf{U}_L > \Pi_H^* - q\mathbf{U}_H$, which is possible despite the fact that $\Pi_L^* < \Pi_H^*$ since it is also the case that $\mathbf{U}_H > \mathbf{U}_L$.

In addition, through their influence on the values $\mathbf{U}_H$ and $\mathbf{U}_L$ the parameters p_L, p_H and p_{LH} also affect which equilibria exist and the ruler's preferences over the ones that do. A firm j that is favored by the ruler's challengers who might come to power if the ruler is replaced will have high values of $\mathbf{U}_j$. If p_L is high, for example, then it is likely that the new regime that takes over after the ruler is replaced will favor firm L and thus $\mathbf{U}_L$ will be high. The same holds for firm H if p_H is high, but this firm also benefits more than firm L does when p_{LH} is high, even though its profits would be smaller under competition than under monopoly. When a firm is favored by potential future regimes, that shrinks the parameter region in which an equilibrium exists in which the ruler grants a monopoly license to that firm, and even if such an equilibrium exists, it makes the ruler less willing to do business with that firm rather than with the other firm.

All of these parameters (the q's and p's) are influenced by the "political connections" that the firms have with the ruler versus the opposition. When a firm, say the high firm H, is strongly connected to a viable opposition, then p_H is high and that firm is unlikely to be favored by the ruler. Just as having weak links to the incumbent regime works against a firm's interest, so too does having strong links to the opposition. The importance of these connections for firms in middle income countries is widely attested (Fisman, 2001, Khwaja and Mian, 2005, Faccio, 2006). In many cases, the owners of the firms are even close relatives or friends of the ruler. Our illustrative

cases below provide examples of this, and show more generally that existing connections play a major role in the selection of the favored firm.[7]

4 Illustrative Cases

When examining the political economies of middle income societies, we observe several patterns that correspond to features of our model.

First, these countries grew from low to middle income status, a process that saw substantial welfare improvements, but afterwards stayed as middle income countries for an extended period.

Second, these countries grew not by embracing policies of unfettered economic competition, but by favoring a small set of firms whose market rents were protected by the state, and which shared a substantial portion of their profits with rulers.

Third, there was a set of potential firms that could have participated in the economy, but whose participation would have presented political risks to regime, making rulers reluctant to allow their entry.

We illustrate these features in three cases below.

4.1 Indonesia

In the 1960s, Indonesia was one of the poorest countries in the world. In 1967, just two years after a military coup brought army chief of staff Suharto to power, the World Bank estimated the country's GDP per capita to be only $53, putting it in the bottom decile of the world income distribution. The main story of the subsequent three decades was that of rapid economic growth. By 1997, the year before Suharto was deposed by a popular uprising, real per capita GDP had grown 368%, putting Indonesia in the fourth decile of the world income distribution. While part of this increase resulted from a surge in oil prices, a major contributor to this growth was the rise of manufacturing: manufacturing in non-mining GDP quadrupled to 40% as

[7]There is yet another way of thinking about political connections in our model. If connections help the ruler coordinate with the firm, then a ruler who is connected to the low firm but not the high firm could end up doing business with the low firm (i.e. granting it a monopoly license) even if an equilibrium exists in which he does business with the high firm and which gives him a higher payoff than any equilibrium in which he does business with the low firm. Thus, connections could affect the ability or inability of the ruler and a firm to simply coordinate on a cooperative equilibrium, reflecting a lack of trust between the two to play their part of a cooperative agreement. In this case, the ruler and a firm that do not trust each other might be expected to play the history-independent low income equilibrium of Proposition 3, which is always an equilibrium.

urbanization increased from 16% to 38%, while employment in agriculture declined from 75% to 50% (Van der Eng, 2009). Though much of this new wealth went to the already wealthy, there were also enormous improvements in social welfare. Infant mortality fell by three quarters, from 194 to 46 per 1000, secondary school enrollment tripled (18% to 54%), and the poverty gap fell by at least half (30 to 15).[8]

The main thrust of economic policy making under Suharto was the generation of rents for favored economic actors, either by eliminating competition or through direct transfers of state resources (McLeod, 2000). The most favored category of "entrepreneurs" were members of Suharto's immediate family. Tommy Suharto, the dictator's son was a major beneficiary from the privatizations of the 1980s, buying an oil marketing company and an airline at concessionary prices. Tommy was also granted the contract to build a toll highway south of the capital, a move widely interpreted as a consolation prize for losing the competition to build a toll road north of the capital to another company—his sister's.

Tommy also benefited from loans via state owned banks to found new companies, such as the infamous $650 million loan to create a "national" car company that assembled Korean cars from kits. In many other cases Tommy's companies were simply granted legal monopoly rights, such as being granted the exclusive right to buy, sell, and import cloves—a right he promptly used to lower the prices paid to farmers while raising the prices paid by consumers. When key inputs were not for sale, the Suharto family simply took them, as when Tommy obtained property in Bali worth over $1 billion by expropriating land from farmers for approximately 6% of its market value. When the farmers protested, the regime used the army to evict them (Colmey and Liebhold, 1999).

The other beneficiaries of Suharto's regime were a small group of businessmen drawn from Indonesia's Chinese community. Though only about 1% of Indonesia's population, the Chinese community held a disproportionate share of the country's entrepreneurial experience and capital–so much so that anti-Chinese riots were common, and in the decades after independence the government had even restricted the right of Chinese firms to engage in retail trade. Mackie (1991) describes how the Chinese business groups benefited from the same mix of policies that enriched the Suharto family:

> the big Sino-Indonesian conglomerates . . . have been able to benefit from deviations from free-market principles by taking ad-

[8]This and all subsequent welfare data is taken from the World Development Indicators. Poverty gap data (at 2.15 2017 USD) is first available in 1984.

> vantage of privileged access to resources (particularly subsidized loans), quasi-monopoly situations, and rent-seeking opportunities (Mackie, 1991).

The largest of these firms—and, in fact, the largest firm in the country—was the Salim group, founded by an old acquaintance of Suharto, Liem Sioe Liong. The firm benefited from early grants of monopolies on clove imports and flour milling to create a conglomerate that touched almost every sector of the Indonesian economy, with particularly large interests in cement, petrochemicals, and steel. Suharto's golf partner, Bob Hasan, another of his cronies, benefited from access to state forest lands and the chairmanship of a government-created cartel to control 70% of the global market in plywood (Barr, 1998).

Chinese entrepreneurs had to pay for their privileges as "pariah capitalists" with political and financial support for the regime (Dunning, 2005). Some of this payment was public, as when in 1990 Suharto gathered the founders of the leading Chinese conglomerates on national television to pledge to 25% of their shares to cooperatives. But the more important contributions were private. Chinese companies were forced into joint ventures with firms that were controlled by army officers or Suharto family members. In addition, Chinese entrepreneurs had to provide a constant flow of bribes and "license payments" (McLeod, 2000). From such payments Suharto accumulated a personal fortune of some $16 billion.

Both Chinese and nepotistic firms faced the problem of skilled and well-capitalized foreign competition. In sectors where Indonesia did not have a comparative advantage, this required the creation of trade barriers, while in sectors where Indonesia did have a comparative advantage, it necessitated the creation of restrictions on foreign direct investment. Indonesia combined "non-tariff barriers and high rates of protection in manufacturing activities [with] ... extensive controls on foreign direct investment" (Bhattacharya and Pangestu, 1997, 409). Among the protected industries were Hasan's plywood processing plants (whose input prices were lowered by restrictions on the export of unprocessed lumber) and Tommy Suharto's car plants (which were protected by high tariffs and exempted from tariffs on foreign made components).

The Suharto regime's base of the army and the Chinese Indonesian community was a narrow one, and major sections of Indonesian society (*aliran*, or "political streams") remained strongly opposed to Suharto and his policies (Aspinall, 2005). Of these, the regime was most attuned to the threat of the left. Suharto predecessor as president, Sukarno, was a self-professed social-

ist whose regime had relied on the support of Indonesia's Communist Party, one of the region's largest. Shortly after taking power, Suharto oversaw the extrajudicial killing of over one million communist party members and sympathizers. However, sympathy for left-wing, or at least anti-military, views remained strong in many parts of Java, and Sukarno remained an important political symbol (Aspinall, 2005, 145-155).

The other major aliran were Islamists (both modernist and traditionalist) that drew support from large religious civil service organizations dating back to the colonial period. While Suharto had allied with the Islamists to destroy the communists and remained willing to appeal to them, the secular and pro-Chinese policies of his regime, and his mistrust of the Islamic groups' mass base, meant that confrontations sometimes occurred. Among these was the Tanjung Priok massacre, where government shootings of Muslim demonstrators led to a series of bombings and mass arrests.

Suharto had attempted to control the opposition by forcing all opposition parties to consolidate into two groups—the Islamist PPP, and the leftist PDI—both of which were involved in the unrest that led to the downfall of Suharto and the negotiations that followed. The regime's attempts to marginalize Sukarno's daughter, Megawati Sukarnoputri, within the PDI led to student riots, in which PPP activists also became involved. These riots broadened to attacks on symbols of crony capitalism such as Tommy Suharto's car showrooms, and shops and factories owned by Chinese Indonesians (Collins, 2002, 590-5). One opposition politician complained that "the Chinese are colluding with [the military] to protect their interests. If the workers demand Rps. 1 million, the [Chinese] businessmen would rather give one-and-a-half million to the military" (Collins, 2002, 587). However, it was the refusal of Islamist military officers to intervene in the riots that eventually forced Suharto to resign. In the subsequent democratic elections, Megawati won 34% of the vote, Islamist parties won 35%, and Suharto's former party won 22%.

The favored firms of the regime, and thus Indonesia's business community, were antipathetic to both opposition currents. In the case of Suharto's relatives, their influence and wealth would decline if Suharto was removed from office. The Chinese elite was politically dependent on the Suharto regime in a more negative way. Any plausible political alternative, whether leftist or Islamicist, was likely to be much more hostile towards them: Sukarno had deported thousands of Chinese and confiscated their businesses, while the Islamic groups threatened (all too credibly, as it turned out) to carry out pogroms against them (Susanto, 2008). The status of the Chinese as "politically weak but economically important" group "whose

ethnicity precisely served to discount any credible future claim they could lay national political power" has been cited as a major factor in Suharto's favoritism towards them (Dunning, 2005, 459, 469).

If the Chinese and regime cronies made up nearly all of Indonesia's entrepreneurs, they did not make up all its *potential* entrepreneurs. The histories of both pre and post-Suharto Indonesia show that there were groups of businessmen who were not allowed to expand precisely because they were presumed to support the opposition. During the colonial period, the *batik* (printed cloth) industry included many non-Chinese traders with strong Islamist views: the trade association they formed, Sarekat Islam, would eventually become one of the largest Islamic parties (Susanto, 2008, 33). A few indigenous businessmen were able to prosper during the instability of the 1940s and 50s, the most prominent of whom was a Sumatran, Musin Dasaad, who even Chinese contemporaries regarded as a canny operator (Yoshihara, 1989, 252). Dasaad began as an importer but expanded into shipping and textiles during World War II, when he maintained close links to the Japanese occupation regime (Post, 1996). An early financial investment in Sukarno's political career brought enormous dividends, and the Dasaad's conglomerate gained a dominant position in many areas, including Tommy Suharto's future interest, car imports. However, after Sukarno's fall his group quickly "became history," and was broken up (Post, 1996, 616).

During the Suharto period, other indigenous entrepreneurs tended to support the opposition. Aspinall (2005, 175) describes the PDI grassroots as "operators of medium-sized businesses, small shopkeepers, retailers, restaurant or food-stall owners, owners of small fleets of taxis or other kinds of public transport. Often such individuals resented being squeezed out by better-connected business groups." The opposition, even on campuses, was funded by donations from this class (Aspinall, 2005, 126).

4.2 Thailand

In 1960, the first year for which the World Bank provides an estimate, Thailand had a per capita GDP of only $103, putting it in the bottom quartile of the world income distribution. Over the next four decades, the economy grew immensely; on the eve of the Asian Financial Crisis of 1997-99 Thailand's per capita GDP had surpassed $3,000. This change was associated with welfare improvements for the general population. Between 1960 and infant mortality fell by 93%, from 101 per 1000 births to 7.4. Rates were twice as high in Vietnam, three times as high in Cambodia, and five times as high in Myanmar. Telephones became 46 times more common (from .14

per 100 people to 64.7) and life expectancy increased by 28 years (from 51 to 79). Secondary school enrollment became universal, and absolute poverty (using the UN's thresholds) was abolished.

However, Thailand has not become a high-income country, and shows no signs of becoming one. In 2023 Thailand has a per capita GDP of just over $7,000, putting it almost exactly at the mid-point of the world income distribution. Thailand is widely cited as being one of the countries most associated with the middle income trap (Jitsuchon, 2012).

The economic system that governs present-day Thailand is a 20th century creation. From the founding of the Chakri dynasty in 1782 until 1932, Thailand was an absolute monarchy, where the king was the source of law. In 1932 a military coup created, once the dust settled, the form of a constitutional monarchy. The real consequence, however, was to create a partnership between the army, the throne and a small group of sympathetic civilian politicians that have dominated the country since that time, with formal control oscillating between short-lived democratically elected parliaments and the military regimes that overthrow them in the name of curtailing corruption and restoring political stability. Since 1932 the Thai army has staged 18 coups, 11 of which successfully toppled the government. A senior officer of the Thai military has occupied the post of prime minister for 65 out of the past 91 years. Even in its more democratic periods Thailand has not had strong institutional protections. Transparency International has regularly ranked Thailand as worse than the global average in corruption (in 2022, 101st of 178 countries), and indices of institutional protections and "quality of government" are similarly pessimistic.[9]

In Thailand, certain firms associated with the ruling elite have been favored by the state. Perhaps the most important way in which the playing field has been tilted in the Thai economy is through access to capital. Circa 1996, the top four banks in Thailand accounted for 54 percent of the assets of all commercial banks. These same entities controlled 15 finance companies, accounting for one-third of total finance company assets. These banks and finance companies, in turn, tended to lend to firms that were also owned by the same group, and the privileged access to credit of firms within these conglomerates gave them an advantage over potential rivals (Charumilind et al., 2006). Many of the larger banks are either owned by the state (Krungthai Bank, Government Savings Bank, Thai Military Bank) or the crown (Siam Commercial Bank). Since both the private and public banks offer loans

[9]In 2022 Thailand was ranked 92nd out of 139 countries in the International Country Risk Group's quality of government index.

based on private relationships rather than business considerations and are thought to have implicit guarantees from the government, they tended to provide risky loans to their associates, a practice that became a major factor in the 1997 Asian financial crisis (Charumilind et al., 2006).

At the beginning of Thailand's development process, the use of state capital to favor the elite was even less subtle: the king simply used tax money to buy assets and provide himself with startup capital. In the late 19th century, the Crown replaced labor duties with direct taxes, and 15 percent of all tax revenues were separated from the government budget and placed in the hands of a Privy Purse Bureau (PPB). As surpluses accrued in the PPB, the royal family began to deploy them for investments in commercial real estate, banking, manufacturing, and shipping. By 1918, the PPB's investments included, among many others, the Siam Cement Company (which effectively operated as a monopoly), the Siam Commercial Bank, and investments in urban real estate that made the PPB the largest single landowner in Bangkok (Ouyyanont, 2015, Unchanam, 2020). After the 1932 coup, the military government transferred the assets of the PPB to a new body called the Crown Property Bureau (CPB).

In other cases, the Thai government favored specific firms through a manipulation of the regulatory process. Competition law, for instance, was used to punish foreign firms with a large share of the market, but goes unenforced against well-connected domestic firms guilty of identical practices (Nikomborirak, 2005). In the manufacturing sector, domestic firms are favored by import duties and domestic content requirements (McKean et al., 1994). The right to operate TV stations is also only allocated to the exceptionally well-connected (Naknoi, 2020). Consequently, connections to powerful politicians, especially members of the Cabinet, also influenced the profitability of firms (Naknoi, 2020). As Imai (2006) shows, enterprises controlled by family businesses with a family member in the Cabinet between 2001-2005 achieved rates of return ten percent higher than those of unconnected firms in the same industry.

Control of the political system, and control of the favored firms, is split among three groups. The first is the Crown—the king, his extended family, and the Crown Property Bureau (CPB). Reorganized after the return of the monarchy in 1946, CPB is independent of the Treasury. It is a tax exempt holding company directed "totally on the royal inclination," and the single largest investor in the Thai economy (Ouyyanont, 2015). The king's political power derives from his immense symbolic authority. Elected governments who sought to challenge the ruling coalition were undermined by disapproving speeches by the king or were removed by the army in coups blessed by

the palace (McCargo, 2005). The economic power of the CPB is exercised through a complex network of interlocking holdings By the mid-1990s, the CPB had investments in 92 enterprises, spanning manufacturing, insurance, banking, hotels, communication, and property development and construction. The Siam Cement company, which was one of those 92 enterprises, in turn had investments in a multitude of other companies, spanning iron and steel, ceramic tiles, petrochemicals, pulp and paper, and electrical products. The Siam Commercial Bank, which was another of the 92 CPB enterprises, in turn had investments in 77 other companies, spanning asset management, real estate, manufacturing, warehousing, mutual funds, insurance, mining, construction, entertainment, and vehicle production (Ouyyanont, 2015).

The second pivotal group is the Thai Army officer corps, whose upper echelons run the country directly or through civilian proxies (Naknoi, 2020). The military has also played a direct role in the economy, particularly after the 1957 coup. Naknoi (2020) identified over 100 military-related firms scattered across major sectors of the economy. The most important of these were the Thai Military bank, which on founding was owned by the military itself (58%) and individual officers (42%). The bank in turn controls three asset management companies with a wide range of holdings. The military also owns two TV channels and a large portfolio of urban property.

The third pivotal group is a set of Sino-Thai business tycoons who headed (and continue to lead) family-based holding companies that control virtually all large-scale Thai business enterprises. These holding companies sit on the top of complex investment pyramids such that the tycoon's family owns just enough shares to control the downstream firms by naming the boards of directors and the senior managers while leaving most of the shares in those companies in the hands of passive minority shareholders. Minority shareholders invest in full knowledge of these arrangements; they count on the political connections of the tycoon families to protect the firms' property rights and provide it with favorable public policies (Suehiro and Wailerdsak, 2004, Bertrand et al., 2008). By the late 1990s, the Sino-Thai family-based holding companies controlled 194 of the 220 leading business groups in the country (Suehiro and Wailerdsak, 2004), and 40 percent of assets in the largest 2,153 publicly-traded and privately-held Thai business enterprises (Bertrand et al., 2008).

The Chinese Thai were initially marginal members of the governing coalition. In the early 20th century, the first Sino-Thai business tycoons were denounced by the king as "vampires who steadily suck dry an unfortunate victim's life blood" (quoted in Unchanam (2020, 50)). Under the military regimes of the 1930s and 40s, Chinese schools were closed, and some Chi-

nese enterprises were expropriated. The Sino-Thai business elite responded by offering to pay for protection; they invited high ranking army officers to join the boards of directors of their firms, compensating them with director's fees, stock distributions, and sinecures (Unchanam, 2020, Laothamatas, 1988, Dhiravegin, 1975). From 1930-1950 the major business groups obtained charters from the government to establish commercial banks, which they used to channel the funds to their own enterprises. Of the 20 commercial banks established during this period 14 were founded by Sino-Thai business groups, while the remaining six were founded by the CPB (Charumilind et al., 2006).

While dividing the regime's leaders into three groups is convenient, it ignores the crossover between them. Members of the Chinese families increasingly enter politics and key army generals served not just in the cabinet and Privy Council but on the boards of enterprises controlled by the CPB and the family-based holding companies (Laothamatas, 1988). The most prominent example of such a crossover figure was Prem Tinsulanonda, widely acknowledged as the political mastermind of the post-war Thai political system. Tinsulanonda was Commander in Chief of the Thai Army from 1978 to 1982, Minister of Defense from 1979 to 1986, Prime Minister from 1980 to 1988, and President of the Privy Council from 1998 to 2019. He served as president of the Charoen Pokphand Foods Group, controlled by the Chearavanont family, and as honorary president of the Bangkok Bank, controlled by the Sophonpanich family (Ouyyanont, 2015). His example is not unique. Circa 2000, 15 percent of the directors of Thailand's corporate boards (comprising 323 publicly-traded firms) were government officials, many of them with ties to the military (Suehiro and Wailerdsak, 2004, Naknoi, 2020). Even under democratic governments "money is an inevitable key to political success, and political success in its turn stimulates business opportunities and more money" (Pathmanand, 1998, 64).

Relative to Suharto's personalist regime in Indonesia (and other personalist regimes around the world), the depersonalization of the Thai regime is one of its sources of strength. The unpopularity or incompetence of any one prime minister or junta leader can (and frequently does) lead to their removal, but as long as the army and the crown remain beyond criticism, they can be replaced by someone much like them. However, the large size of the elite means that there are frequent internal conflicts, and these conflicts might plausibly lead to regime breakdown. The most plausible scenario would be for a charismatic insider to challenge the system, perhaps with populist rhetoric, to gain economic privileges for himself at the expense of

the rest of the elite. In the language of our model, a monopolist firm could use his wealth to overthrow the ruler.

The career of Thaksin Shinawatra (Prime Minister 2001-6) illustrates just how seriously the elite take this possibility. Thaksin was a creature of the system, a former police lieutenant colonel from a well-established Sino-Chinese business family with strong military contacts who found initial success in business leasing IBM computers to his former colleagues in the police (Mesher and Jittrapanun, 2004). However, the real basis of Thaksin's fortune was laid in the 1990s when friends in the government granted him without competitive bidding the monopoly right to sell GSM 900 compliant cell phones, several landline concessions, and the right to operate a cable channel (McCargo and Pathmanand, 2005, 27-8). He entered parliament in 1995, and benefited from inside information about the flotation of the currency, allowing him to anticipate a policy that doubled the debt burden of many of his competitors overnight (Kazmin, 2007, 213).

In 2001, with his TV channel cheering him on, Thaksin was elected Prime Minister in a landslide on a platform of redistribution to the rural poor. Initially, Thaksin's premiership saw even greater favoritism to his business group, including tax breaks (such as an eight year tax holiday for his foreign media income) and sales of state land (Kazmin, 2007, 220). However, Thaksin's authoritarian style alienated the military and bureaucracy, and his favoritism towards his own firm alienated other businessmen, who "complained that all of the many lucrative government contracts awarded in his administration went to those with links to Mr. Thaksin or members of his cabinet, while firms deemed 'unfriendly' to the government were utterly shut out" (Kazmin, 2007, 219). However, Thaksin was popular with voters, winning reelection in 2005 with an unprecedented 60% of the vote and three quarters of the seats. This made him, by far, the most powerful democratic politician in the country's history: no non-Thaksin party in Thai history ever has won more than 38% of the vote.

Immediately after the election, the other parts of the Thai political system reacted. Demonstrators filled the streets of Bangkok. When Thaksin responded by calling and winning new elections, he was summoned to an audience with the king, from which he emerged visibly shaken to announce his resignation (Kazmin, 2007, 222). Faced with the prospect of new elections which Thaksin might win, and worried by the prospect of Thaksin promoting favorable generals, the Army sent tanks into the streets of Bangkok, canceled the elections, and annulled the constitution. Thaksin's passport was revoked, his assets frozen, and himself convicted in absentia of corruption

charges. The new constitution established a Senate that would be entirely appointed by the Army.

Thaksin was threatening because his wealth and control over the media gave him power. Many potential Thai entrepreneurs are not allowed to get this far, forced to remain in the small-business sector, which declined in importance during the period of rapid economic growth (Wiboonchutikula, 2002). The politics of this class is shaped by the fact that while they would prefer a more competitive economy to the status quo, they would prefer the status quo to an economy where control is even more concentrated. For the latter reason, small-business owners were in the forefront of opposition to Thaksin (Kazmin, 2007, 221). However, at various times the urban small business sector has also supported liberal candidates pledged to a more competitive political system and a more competitive economy. A recent example was in the 2023 election, where Pita Limjaroenrat's Move Forward Party won nearly all the seats in Bangkok (and a plurality overall) on an anti-military, anti-monopoly, anti-royal power platform. One of his signature proposals, popular with both urban consumers and small producers, was to deregulate the liquor industry, previously an oligopoly protected by legal restrictions (Sanglee, 2023, 313). However, the army and court have retained power thanks to the Senate and a timely alliance with Thaksin, who was allowed to return from exile and saw the king commute his jail sentence after he "accepted his crime and showed remorse" (Author], 2023). The new Prime Minister, Srettha Thavisin, is the scion of a wealthy Sino-Thai business family and one of the country's largest property developers. At the moment, the power of the Thai establishment remains unshaken.

4.3 Mexico

During the regime of Porfirio Díaz (president de facto 1876-1911), the Mexican elite and business community had been closely connected (Razo, 2008). The Díaz regime awarded lucrative privileges to a select group of merchants, financiers, and industrialists, including monopoly rights to new technologies, tax exemptions, subsidized loans and expropriated land (Haber, 1989, Haber et al., 2003). The favored firms were either close political associates of the regime or domiciled foreigners, with a few straddling both categories (Maurer and Haber, 2007). Under Díaz, both Mexico City and the various state capitals developed a network of wealthy families who controlled the major banks, the state government, and important industrial enterprises.

The Mexican Revolution chased Díaz into exile and Mexico began two decades of civil war and political conflict. When stability was restored in

the 1930s under the dominant National Revolutionary Party (later renamed the Institutional Revolutionary Party or PRI), power was more broadly distributed, with a series of single-term presidents sharing power with party bosses and making limited concessions to organized workers and peasants, whose organizations were incorporated into the party's institutional structure. But the template of cronyism and economic favoritism that the Díaz regime had provided was used to recreate a similar system that concentrated power in the hands of the political and economic elite.

The PRI's "perfect dictatorship" was not a regime with strong institutional protections. Opposition parties were allowed, but they were not allowed to win state governorships or more than a third of congressional seats. Often, election outcomes were preordained, with the "network breakdown" that halted and then reversed the results of the 1988 presidential election being only the most infamous such intervention. Protections for investors were also weak, with memories of the expropriation of the oil sector and much of the country's best land by president Lázaro Cárdenas during the 1930s being especially fresh (Haber et al., 2008).

Despite these disadvantages, Mexico experienced rapid growth under the PRI, in particular in the decades after World War II—real GDP per capita increased 237% from 1946 to 1981. This was a much faster pace than contemporary Latin American countries, though slower than some countries in Asia and Southern Europe. Mexico became an solidly middle income country, substantially closing the gap with the developed world: real per capita GDP increased from 24% of the US level in 1946 to 36% in 1981. Similarly, life expectancy increased from 39 years in 1940 to 67 years in 1980, while literacy increased from 37% to 83%.

Wealthy Mexicans had initially opposed the Mexican Revolution but quickly made their peace with the PRI, in part because the party ended the civil war and suppressed the pro-redistribution agrarian movements of Pancho Villa and Emiliano Zapata. Sometimes this relationship was formalized, as at the 1925 conference when Mexico's bankers themselves wrote a new code for their industry (Haber et al., 2008). More often, the arrangements were temporary and informal.

While there were a few entrepreneurs with political backgrounds, most leading businessmen were members of established dynasties. The Creel-Terrazas family of Chihuahua is a well-known example. Founded by a Porfirian governor, the family was the dominant economic producer in the state, both through their extensive agricultural landholdings and their banking and corporate interests. The revolution temporarily sent them into exile, but they were soon back, and Enrique Creel (himself a former governor and

foreign minister) was a key figure in the negotiations that established the regulatory system for the Mexican banking system (Maxfield, 2019, 38). Enrique's grandson René Creel was a founding member of the PAN. Later day members of the family have remained active in the business community and the PAN, including Gustavo Madero (former vice president of the regional employers association and president of the PAN) and Santiago Creel (former PAN senator and Minister of the Interior).

The Creels were sometimes associated in business with the Garza-Sada family, who turned a regional brewery into the Grupo Monterey, which dominates the Mexican food, beverage and packaging industries and has extensive interests in auto parts, steel, real estate and banking (Maxfield, 2019, 48). The Garza-Sadas are extensively involved in civic activism in Northern Mexico, and cultivated a reputation for keeping politics at arms length, though this did not keep them from making a series of payments to the brother of PRI President Carlos Salinas de Gortari at the same time they bidding on privatized corporations from his government (Sheridan, 1996).

The techniques of government favoritism by the PRI were broadly similar to those used in Indonesia and Thailand. Government development banks provided concessionary loans and loan guarantees to private banks, who in turn passed them on to the firms with which they shared owners (Del Angel-Mobarak, 2003). At times, the government cut out the middlemen and lent directly to the private sector through the Nacional Financiera (NAFINSA) (Haber et al., 2008). For instance, Hylsa (owned by Grupo Monterey) was able to expand its business in 1953 only after NAFIN (in collaboration with the US Import-Export bank) financed the purchase of a new steel mill (Taeko, 2001, 57).

There were also extensive policies to restrict competition. Local firms were protected from competition by foreign firms: "few non-Communist economies were more closed than Mexico's at the onset of the 1980s" (Baer and Weintraub, 1994, 159). The granting and refusal of import permits was a highly individuated process, with favored importers being given windfalls and disfavored producers seeing their opportunities limited by a lack of intermediate goods. In a nation dominated by "a relatively small number of large private sector interests dependent on a favorable relationship with an interventionist government it is often more important to have good connections than entrepreneurial skills" (quoted in Morris (1991, 52)). Ambitious young people who in other countries might have founded new firms either entered the public sector or emigrated to the United States.

The career of former President Miguel Alemán (1946-1952) illustrated some of the other techniques available. Alemán was one of the founding

partners of the country's only TV channel, whose monopoly status was guaranteed by its favorable coverage of the PRI. When Alemán decided that the small port town of Acapulco was ripe for tourism, he was able to buy up normally non-marketable peasant smallholdings (*ejidos*) for conversion into private hotels. The construction of these hotels was made easier by Alemán's post-presidential job as minister of tourism.

Post-revolutionary Mexico inherited from Porfirian times an elite class that was cohesive, autonomous, and politically skilled. As Schneider (2002, 78) writes, Mexican business is organized into "a dense network of sectoral associations which engage in lobbying of the state to a degree that is anomalous ...in both Latin America and among developing countries." Organized business was also linked to the PRI's token opposition party, the National Action Party (PAN). The distance was also social: Relative to the political elites of the PRI, the business were more likely to be northern than southern and observant rather than lapsed Catholics (Camp, 1989). The PRI also continued to define itself as a left-wing (or, at best, technocratic) party, and continued it's rhetorical condemnations of the business community.

It is curious that the PRI not eliminate a business class that was at best indifferent to them and often traced its roots to the previous regime. Certainly there were voices within the PRI coalition in favor of such a path, typically arguing for increased state ownership. However, the regime appears to have settled on the view that the financial and human capital possessed by existing entrepreneurs was not easily replaceable. After years of civil war and long decades of crony capitalism, there was not any alternative potential entrepreneurial group in the country. The most plausible alternative of allowing American firms to operate was at this stage ideologically unacceptable.

The arms length nature of the "alliance for profits" between the PRI and the business class made it unstable. The business class had no assurance that the state would not come and take their profits away. The non-independent judicial system gave little assurance of protection (Finkel, 2005), and unlike workers and farmers, they had no official representation with the official corporatist organizations of the ruling party. Moreover, while the business community had a good relationship with some PRI politicians like Miguel Alemán, party rules that forbid reelection meant that they did not stay in office more than a few years. Businessmen were of course, compensated by "granting them special privileges designed to raise their rates of return high enough to compensate them for the risk that the government will expropriate their property" (Haber et al., 2008, 9), but the risk remained.

The inevitable expropriation event began in the 1970s, when President Luis Echeverría sought to vastly increase government spending while keeping taxes low. The costs were transferred to capital holders (through higher inflation) and bankers (through requirements that they lend to the government at high interest rates) (Haber et al., 2008, 57-65). Echeverría also began a limited expropriation of agricultural land, and removed politicians sympathetic to business, as in the case of Nuevo Leon Governor Eduardo A. Elizondo. Businessmen naturally responded by reducing their domestic investments, though neither this nor their protests were very effective at influencing policy (Camp, 1989, 24-27).

When the deficits and government borrowing became unsustainable in 1982, the government defaulted on its debt and devalued the currency. But as these steps proved insufficient, the government then forcibly converted all dollar bank deposits into pesos then nationalized all private sector banks. The result was a dramatic decline in private sector confidence. José María Basagoiti, leader of the Mexican Employers' Confederation (COPARMEX), remarked that after the bank nationalization, "anything could happen in Mexico," while 96% of surveyed businessmen called bank expropriation "extremely important" in reducing their confidence (Haber et al., 2008, 66-68). The crisis was not only the start of a lost decade for economic growth but an inflection point in the economic history of the Mexico: relative to the United States, Mexican GDP per capita has never regained the levels it reached in the early 1980s. Economic policy over the next few decades would emphasize the encouragement of foreign investors, who could rely on their own governments or bilateral agreements like the North American Free Trade Agreement to provide the investor protections that Mexico's domestic institutions could not.

The political consequences of the government's break with the private sector were equally dramatic, though they were delayed by the PRI's skill in electoral manipulation. Many businessmen, especially smaller ones, switched their loyalties to PAN (Haber et al., 2008, 68), and businesses became increasingly vocal in their criticism of the PRI (Hogenboom, 2014). The defection of business also reduced the party's ability to influence the media (Haber et al., 2008, 145-7). Even by their own counting, PRI vote share in presidential elections declined from 86% in 1970 to 49% in 1994. Once pressure from the United States and civil society forced transparent elections, the PAN would win the 2000 election, ending the PRI's hegemony and turning Mexico into an electoral democracy.

5 Conclusion

A goal of development policy is to find ways of improving the lives of people in the least developed societies. For all underdeveloped countries, one obvious first step is to attain moderate levels of development. However, this first step can be one that precipitates a political economy that is self-reinforcing in such a way that it inhibits further steps in development.

To see how such a first step was taken, we examined specific cases of development in Mexico, Indonesia and Thailand, evidencing how this step entailed the creation of crony-capitalist regimes defined by economic favoritism and rent-protection. Nevertheless, these countries experienced growth spurts that took many of their citizens out of poverty and enabled them to achieve living standards that—while still low in comparison to those found in Western Europe and North America—were and are higher than in the poorest societies of the world, such as those of sub-Saharan Africa.

Many middle income countries may be trapped at middle income due to the system of economic favoritism and cronyism that developed them to a certain point but acts as the main obstacle to further development. But is the risk of getting trapped in middle income status a sufficiently good reason for a low income country to deny itself the possibility to grow middle-income status if it simply does not have a politically feasible direct path to becoming a high-income country? Our main policy implications apply when the alternative to being a flawed middle-income country is to be a flawed poor country with lower welfare for all citizens.

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Appendix

A Proof of Proposition 1

Part (i) is explained in the main text, so we only provide a proof of part (ii) here to complete the argument. We proceed by examining two cases.

Case 1: The labor market clearing wage is $w = A_L \geq w_H^*$. Note that if both firms offer the same wage, they must split the total labor L given by the supply function at this wage. Any split can be maintained in equilibrium, including one in which a firm gets no workers. However, a firm with the smallest labor force must have no more than half of it. We label any such firm j and denote the fraction of the labor captured by it when the wages are the same $\kappa \in [0, \frac{1}{2}]$.

Now suppose that the equilibrium wage is $w < A_L$. Then, firm j could offer wage $w + \epsilon$, with $\epsilon \in (0, w - A_L)$. The firm gets all the workers in the formal economy since it offers a better wage. Hence, its profit is now $\Pi_j(w + \epsilon) = A_j(w + \epsilon)^\phi - (w + \epsilon)^{(\phi+1)}$. It follows that

$$\lim_{\epsilon \to 0} \Pi_j(w + \epsilon) = A_j w^\phi - w^{(\phi+1)} > A_j \kappa w^\phi - \kappa w^{(\phi+1)} = \Pi_j(w) > 0.$$

Therefore there is some $\epsilon > 0$ such that $\Pi_j(w + \epsilon) > \Pi_j(w)$ and a profitable deviation exists for one of the firms. Therefore, we cannot have $w < A_L$.

Now, suppose that the equilibrium wage is $w > A_L$. This implies that L does not make a profit at this wage and is better off not hiring. Then, the only active firm is H and it can increase its profit by setting $w - \epsilon > A_L$. Since $w > A_L \geq w_H^*$ and the monopsony optimization problem is concave, it follows that setting a wage closer to the optimum by subtracting $\epsilon > 0$ (while maintaining a wage high enough to prevent firm L from hiring) must increase the profit of the H firm. Therefore, firm H has a profitable deviation and we cannot have $w > A_L$.

We conclude that $w = w_{LH}^* = A_L$ and profits are 0 for firm L and $\Pi_{LH}^* = (A_H - w_{LH}^*)(w_{LH}^*)^\phi$ for firm H. At this wage, firm L is indifferent between hiring or not, but in equilibrium it will not hire. We can easily show that this is an equilibrium since there are no profitable deviations. On the one hand, firm L cannot increase the wage since it could only lower its profit and it would still get zero workers if it decreased the wage. On the other hand, firm H already captures all the available workers at this wage. If it lowers the wage below A_L, firm H will lose all its employees and get zero profit and if it increases the wage, it will get further away from its optimum without "stealing" workers from the other firm. Since

the monopsony problem is concave, this can only reduce profits. At this wage, firm L cannot hire in equilibrium (even if indifferent) since then firm H could steal all the workers with an increase $\epsilon \to 0$ in its wage, and this would be a profitable deviation.

Case 2: The labor market clearing wage is $w = w_H^* > A_L$. Although, this case is ruled out by the inequality in Assumption (A2), we will treat it here to cover the claim in the text preceding this inequality. In this case, firm L must not hire since it would have negative profit otherwise. Suppose that the equilibrium wage is $w \neq w_H^*$. Then, firm H would increase its profit by changing the wage to w_H^* since w_H^* is the optimum and firm L does not hire at this wage (there is no competition for labor). Hence, there is a profitable deviation for H and $w \neq w_H^*$ cannot be an equilibrium. We conclude that $w = w_H^*$ and profits are 0 for L and $\Pi_{LH}^* = (A_H - w_{LH}^*)(w_{LH}^*)^\phi$ for H. This is indeed an equilibrium since firm L cannot offer a competing wage without getting negative profits, and firm H is offering the unique wage that maximizes the monopsony problem. □

B Endogenous Continuation Values

B.1 An Extension

In our baseline model we assumed that if the ruler is removed from office he is replaced by either a ruler who grants a monopoly to the low firm and sets tax $\hat{\tau}_L$ every period, one that grants a monopoly to the high firm and sets tax $\hat{\tau}_H$ every period, or one that grants licenses to both firms and sets a tax $\hat{\tau}_{LH}$ every period. Here, we informally describe a simple way of endogenizing this continuation play by extending our model.

The first change that we make to the baseline model is we assume that all rulers (both the incumbent and any possible challenger that could come to power if the incumbent is replaced) can be one of four types labeled 0, L, H and LH, which overlaps with the four equilibrium paths that we consider (see Section 3.4)— but this should not create any confusion. The way that these types of rulers are differentiated is through the parameters q_L, q_H, and q_{LH} which vary by ruler type. Specifically, we assume that a type $\vartheta \in \{0, L, H, LH\}$ ruler has parameters $q_L = q_L^\vartheta$, $q_H = q_H^\vartheta$, and $q_{LH} = q_{LH}^\vartheta$. We extend the baseline model to a dynamic model in which whenever an incumbent ruler is replaced, the probabilities that each of the four types of rulers comes to power are respectively 0, p_L, p_H and p_{LH}.

We then seek to construct an equilibrium in which type 0 rulers all play the low income equilibrium, type L rulers all play some low middle income

equilibrium in which they set $\hat{\tau}_L$ as the on-path tax rate in every period, type H rulers play some high middle income equilibrium in which they set $\hat{\tau}_H$ as the on-path tax rate in every period, and type LH rulers play some high income equilibrium in which they set $\hat{\tau}_{LH}$ as the on-path tax rate in every period. Moreover, we restrict attention to type-symmetric equilibria: all rulers of the same type play the same strategy, and each firm plays the same strategy with all rulers of the same type.

To construct the equilibrium, note that type-symmetry implies that all rulers of the same type set the same tax rates when their personal histories of interaction with the firm coincide. In the notation of our baseline model, this implies, for example, that if all rulers of type L were to play a low middle income equilibrium then they would all set taxes $\hat{\tau}_L$ in every period on the equilibrium path. For the equilibrium incentive conditions for these type L rulers and the type L firm to be satisfiable it is necessary and sufficient that

$$1 - \beta \leq \hat{\tau}_L \leq 1 - q_L^L p_L (1 - \hat{\tau}_L) \tag{9}$$

as in the baseline model; see Proposition 5. But (9) is satisfied for all $\hat{\tau}_L \geq 1-\beta$. Similarly, for rulers of type H and LH respectively playing a high middle income equilibrium and a high income equilibrium, the equilibrium on-path symmetric tax rate for type H rulers would be $\hat{\tau}_H$ and $\hat{\tau}_{LH}$, and for the equilibrium incentive conditions for the high firm and these types of rulers to be satisfiable it is necessary and sufficient that

$$1 - \beta \leq \hat{\tau}_H \leq 1 - q_H^H \left(p_H (1 - \hat{\tau}_H) + p_{LH} (1 - \hat{\tau}_{LH}) \frac{\Pi_{LH}^*}{\Pi_H^*} \right) \tag{10}$$

$$1 - \beta \leq \hat{\tau}_{LH} \leq 1 - q_{LH}^{LH} \left(p_H (1 - \hat{\tau}_H) \frac{\Pi_H^*}{\Pi_{LH}^*} + p_{LH} (1 - \hat{\tau}_{LH}) \right) \tag{11}$$

Both of these conditions can be simultaneously satisfied for values of $\hat{\tau}_H$ and $\hat{\tau}_{LH}$ close enough to 1.

We now have three remarks about this construction.

First, the reason we include the type 0 ruler that plays the history-independent equilibrium with the firms—even though this type has zero probability of replacing rulers who were ousted from office—is that in our baseline model the first period ruler may be one that plays this equilibrium because the other equilibrium paths are not politically feasible.

Second, the equilibrium that is constructed satisfies an additional key property—that after a new ruler comes to power, play between that ruler and the firms never conditions on any part of a past history that occurred

prior to when that ruler came to power. This property is natural, as future rulers should not be expected to reward punish firms for their behavior with past rulers, and firms should likewise not be expected to punish or reward future rulers for the actions of their predecessors.

Third, the conditions for it to be politically feasible for type L rulers to play the low middle income path, type H rulers to play the high middle income path, and type LH rulers to play the high income path are $q_L^L \leq \overline{q}_L$, $q_H^H \leq \overline{q}_H$, and $q_{LH}^{LH} \leq \overline{q}_{LH}$, respectively. These conditions are automatically satisfied in a type-symmetric equilibrium of the extension when $\hat{\tau}_L \geq 1 - \beta$ and $\hat{\tau}_H$ and $\hat{\tau}_{LH}$ are close enough to 1. This implies that the equilibrium played by a certain type of ruler is politically feasible for that type, but it does not mean that the equilibrium played is the only kind of equilibrium that is politically feasible or that it is ruler-optimal for that type.

In fact, if the only constraint on the tax rates is that they not exceed 1, then in selecting ruler optimal equilibrium paths the rulers would set the highest possible values of the tax rates that satisfy (9)-(11). Note that these inequalities all hold for $\hat{\tau}_L = \hat{\tau}_H = \hat{\tau}_{LH} = 1$, but one of our assumptions in the baseline model was that all of the tax rates set by rulers in the continuation game be strictly less than 1. To avoid this problem, we can define a threshold $\overline{\tau}$ such that the set of feasible tax rates for all rulers is the interval $[0, \overline{\tau}]$ with $1 - \beta < \overline{\tau} < 1$ and $\overline{\tau}$ close enough to 1 that inequalities (10) and (11) can be satisfied at $\hat{\tau}_H = \hat{\tau}_{LH} = \overline{\tau}$.

One reason for why it is not possible to set a fully confiscatory tax rate is that there is not enough state capacity to collect more than share $\hat{\tau}$ of each unit of profits (Besley and Persson, 2009). Acemoglu (2005) assumes that after the government sets the tax rate, firms can choose what share of their profit to hide from taxation but hiding is costly: for each unit hidden some fraction of the profit is lost. A similar assumption would work in our setting with the taxation cap of $\overline{\tau}$ if the fraction lost is $1 - \overline{\tau}$.

B.2 Democracy

In the discussion above, we proposed endogenizing continuation play following the probability p_{LH} event that brings a ruler in power that plays the competitive outcome path. Whether there exist such authoritarian rulers is debatable; but if there are not, we have another way to endogenize the continuation play that follows this event: we assume that when a ruler is replaced, a transition takes place with probability p_{LH} to a democratic regime in which citizens vote on which firms receive licenses and what the tax rates

will be, with tax revenue being redistributed in lump sum transfers to the populace.

For this exercise, we will assume that the firms are negligible (i.e. zero mass) and workers form virtually the whole (i.e. full mass) of the voting population. Recall that in our economic model, citizens are ordered by their type θ and some will work in informal economy. It is straightforward to show that preferences over policy are always ordered by type, and thus the median type's policy will prevail in standard models of political competition (Gans and Smart, 1996). The median type's most preferred policy will be to grant licenses to both firms and tax at the maximum feasible tax rate of $\overline{\tau} < 1$ (see the last paragraph of the previous section) and a sufficient condition for that type to have a strict preference for this policy is that both of the following hold:

1. The median type would be employed in the informal sector under any other licensing policy, thus earning a smaller wage than in the case in which both firms are granted licenses:

   $$F(w_H^*) < 0.5 < F(w_{LH}^*),$$

   which we know can hold since $0 < w_L^* < w_H^* < w_{LH}^*$ and F is the CDF of either a Pareto or uniform distribution.

2. The additional wage earnings from working for the high firm rather than having an informal sector job more than makes up for the reduction in the lumpsum tax transfer that arises from redistributing a smaller profit when the high firm competes with the low firm than when it is a monopoly:

   $$\overline{\tau}\frac{\phi^\phi}{(1+\phi)^{1+\phi}}(A_H)^{1+\phi} + F^{-1}(0.5) < \overline{\tau}(A_H - A_L)(A_L)^\phi + A_L,$$

   which can hold whenever $A_L - F^{-1}(0.5) > 0$ is large enough.