The Political Economy of the Middle-Income Trap: Implications for Potential Growth

YIKAI WANG*

Why do some middle-income economies implement policies to achieve sustainable growth driven by innovation, while others fail to do so? In this paper, I propose a politico-economic explanation: innovation leads to the creative destruction of existing technology that can harm the interests of the pivotal policy maker. Therefore, the pivotal policy maker may implement policies that prevent innovation and harm potential growth in order to protect its own interests. Political institutions, which are endogenously determined by fundamentals of the economy such as state capacity, shape policy maker decisions. This paper studies the relationship between growth, policies, institutions, and fundamentals. Understanding the relationship allows for the design of more efficient aid programs to help the growth of middle-income economies, especially in the long run.

Keywords: middle-income trap, political institution, potential growth, rule of law, state capacity

JEL codes: O43, P16

I. Introduction

Many Asian economies successfully grew out of poverty after the Second World War. Some, such as the Republic of Korea, kept growing at a rapid pace and eventually became rich. Others, such as Indonesia and the Philippines, experienced a slowdown in growth and have remained in the middle-income grouping of economies for many years. The “middle-income trap” is a term used to describe the phenomenon in which an economy gets stuck at middle-income status because it is unable to achieve a high enough growth rate to join the club of rich economies.

Why does a middle-income economy grow slowly following a period of rapid growth that brought it out of poverty? The answer is that the main contributors to growth change as the economy enters a new stage of development. When an economy is poor, capital deepening largely contributes to growth. Once it has become a middle-income economy, growth in total factor productivity is more important
A poor economy grows itself out of poverty, and in order to keep growing fast, it needs to change its growth pattern and economic system from one that accumulates production factors to one that improves factor productivities. Therefore, the government needs to implement the right policies and provide the necessary conditions for continued rapid growth as an economy’s stage of development changes. Han and Wei (2015) find that some of the crucial conditions for achieving rapid growth in a low-income economy, such as good transport infrastructure, are replaced in terms of importance when an economy attains middle-income status by other conditions such as openness to foreign direct investment.

If the right policies and conditions can help an economy escape the middle-income trap, why do some economies fail to provide them? This is puzzling, especially given that there is evidence of the most effective policies to adopt based on the experience of economies such as the Republic of Korea that have implemented policies which led to innovation and sustainable growth. One important reason for this failure lies in the political economy: the new policies that an economy needs as its stage of development changes may lead to creative destruction that harms the existing interests of the pivotal policy maker. Even if growth can lead to a larger pie, the government as the pivotal policy maker may not desire this outcome if the new policies required for such growth imply that it must settle for a smaller piece of the pie.

Let us consider a case in which an economy has advanced from low-income to middle-income status by relying on government-led capital deepening in low-value-added industries. As innovation becomes more important for sustainable growth at the middle-income level, the government as the pivotal policy maker needs to change its policies to incentivize entrepreneurs, the pivotal economic agents, to invest in innovative firms if it wants to achieve the rapid growth needed to escape the middle-income trap.

There are many cases in which policy makers do not implement the most socially beneficial policies. One example is when the government’s capacity to tax is too low and it cannot claim a sufficiently large share of output through a tax on entrepreneurs that makes it better off under a new economic system that encourages innovation. Therefore, it prefers to continue promoting low-value-added firms rather than switch to innovation-driven growth. In another example, the government has sufficient capacity to tax and redistribute, but another problem arises: entrepreneurs fear over taxation or even expropriation and so they are not willing to invest in innovation. Therefore, the government needs to commit to a low enough tax rate so that entrepreneurs expect to benefit from innovation. To provide this commitment, the government may need to firmly establish the rule of law and/or share political power with entrepreneurs through democratization. Eventually, an economy’s political institutions will determine whether the pivotal
policy maker and pivotal economic agents are able to agree on switching to a new economic structure and growth pattern.

Escaping the middle-income trap requires adopting new policies that change the growth pattern to one that is driven by innovation. Whether the government is willing to pursue reforms and whether these policies will be effective depends on political institutions allowing for a scheme in which output is shared between the pivotal policy maker and the pivotal economic agents. Political institutions are partly endogenous in terms of whether or not to implement the rule of law or to democratize. Eventually, the fundamentals of an economy will determine the evolution of its political institutions, economic policies, and whether or not it can escape the middle-income trap.

In this paper, I propose a theory to study how economic policies and political institutions are determined in an emerging economy that has attained middle-income status. This theory examines how institutions and growth are determined by an economy’s fundamentals, including the government’s capacities. With the aid of this theory, I assess under which conditions an economy can make the reforms to political institutions and (subsequently) economic policies that are needed to escape the middle-income trap.

Knowing these conditions allows for a discussion of how foreign aid can alter the choices that a government makes about its political institutions and economic policies, which can ultimately help an economy escape the middle-income trap. Many studies on foreign aid only focus on its immediate effects on economic outcomes, while ignoring the response of political institutions and the long-run economic consequences. The model in this paper takes into account the political response to foreign aid and demonstrates that not doing so can lead to a misunderstanding of the impacts of such aid, especially in the long run. Certain types of foreign aid that help an economy’s short-run growth may be harmful to long-run growth by affecting the interests of the pivotal policy maker and possibly hindering political development and economic reform in the long run. Foreign aid that encourages capital deepening in low-value-added industries can discourage the government from promoting innovation. At the same time, some types of foreign aid without any significant positive impact in the short run might benefit an economy’s long-run political development and growth. For example, in the early stage of development when innovation is not critical and the government is most adept at supporting large firms that rely on imitation, foreign aid that encourages political power sharing between the government and entrepreneurs through democratization may appear to be meaningless in the short run. However, as the economy enters a more advanced stage of development in which innovative firms run by entrepreneurs are crucial, the prior establishment of political institutions that protect entrepreneurs can make them feel secure enough to invest in the innovation needed for sustainable growth. Interventions at the early stage of development may even be cheaper for international organizations seeking to promote long-run growth. In summary, foreign
aid that aims to help economies avoid the middle-income trap must take into account the political environment and long-run impacts of such assistance. Furthermore, foreign aid should be conditional on economic policies and political choices in order to incentivize the government to implement policies that are beneficial in the long run.

The rest of the paper is organized as follows. Section II presents the benchmark politico-economic model. In section III, the model is extended to allow for discussions of the impacts of foreign aid on short-run growth, political developments, and long-run growth. Section IV concludes.

II. The Model

This section presents a politico-economic model to study the growth of middle-income economies. It emphasizes how potentially conflicting interests between the pivotal policy maker and the pivotal economic agents shape political institutions, economic policies, and growth.

A. Preferences, Technology, and Markets

The time span of the model comprises two periods, \( t = 1 \) and \( t = 2 \), representing the two stages of an economy’s development. The model economy is populated by two classes of agents: an elite (\( e \)) and private entrepreneurs (\( p \)). Both of them live for two periods. Each class consists of infinitely many members and the population size of entrepreneurs is larger than that of the elite. For each class, the agents’ behavior is captured by a representative agent, who maximizes his or her lifetime utility, 

\[
    u(c_i^1) + \beta u(c_i^2) = \log c_i^1 + \beta \log c_i^2, \quad i \in \{e, p\}.
\]

There is one final output that can be produced by two types of neoclassic firms. An imitative firm (M firm) produces it with technology, \( Z_m \), that is an imitation of the world technology frontier, \( Z_{t-1} \). Assume that the imitation efficiency is \( \eta \), then 

\[
    Z_m = \eta Z_{t-1}. \quad \text{(1)}
\]

An innovative firm (N firm) improves on the existing technology in the economy in the previous period and produces 

\[
    Z_n = \nu Z_{t-1}, \quad \text{where} \quad Z_{t-1} \text{ is the technology level on which the innovation is based (technology used in the last period), which can be either imitative or innovative. We assume that in period 1, imitative technology is more productive because the existing technology in the economy is far removed from the world technology frontier. In period 2, innovative technology is more productive, given that the existing technology is sufficient in period 2. The assumption is formalized as follows in assumption (1).}
\]

\[
    Z_1^m = \eta Z_0 > \nu Z_0 = Z_1^n, Z_2^m = \eta Z_1 < \nu Z_1 = Z_2^n.
\]

There are an infinite number of firms and therefore each firm takes prices as given. A representative firm for each type of firm is sufficient to capture the behavior of all
firms. To keep the benchmark model simple, I assume that production only requires technology and not other resources such as capital or labor. Therefore, the production function is simply $Y_t = Z_t$. Because there is no labor, workers are also not modeled. In addition to their use of technology, the two types of firms are also different in terms of ownership: M firms can only be run by the elite, while N firms can only be run by the entrepreneurs. This assumption means that the elite have the capacity of putting resources together to run the imitative firms, while entrepreneurship is necessary for running innovative firms. The startup cost for both types of firms is $C \in (Z_n^1, Z_m^1)$. The startup cost makes running N firms at $t = 1$ unprofitable, but the cost is always smaller than output in the other three cases (running M firms at $t = 1$ and running M and N firms at $t = 2$).

In the goods market, a firm’s output goes to the owner of the firm. Specifically, the output of M firms becomes the income of the elite, and the output of N firms is the income of the representative entrepreneur. Each agent can save in the international financial market and can get an exogenous return, $r$, in the next period.

**B. Political Systems**

In this model, there are two types of political regimes: democracy and oligarchy. In a democracy, given majority voting and the larger population size of entrepreneurs, the representative entrepreneur runs the government; in an oligarchy, the elite do.

In a democracy, the outcome is assumed to be the laissez-faire competitive equilibrium. Once a democracy is established at $t = 1$, it is consolidated at $t = 2$.

In an oligarchy, the policy maker can decide either to democratize or to sustain an oligarchy after paying the cost of repression. The government, as the pivotal policy maker, can do two things. First, it can decide to allow for one type of firm to operate—either M firms or N firms. We can think of this as the government needing to provide the necessary environment (regulations and laws) for either of the two types of firm, with only enough capacity to provide for one. Second, after production occurs, the government can tax the other group of agents and transfer the revenue to the ruling group, subject to a constraint on the upper bound of the tax rate. This represents so-called state capacity as described by Besley and Persson (2009).

**C. Equilibrium**

In this subsection, I first solve for the optimal behaviors of agents and then summarize the equilibrium outcome in both a democracy and an oligarchy.

Each agent maximizes his or her lifetime utility. Given the exogenous interest rate, $r$, this is equivalent to maximizing the lifetime income, $y_1^i + (1/(1 + r))y_2^i$, discounted by $r$ and then using savings to smooth consumption in order to maximize
the lifetime utility. Given the log utility, the consumption in period 1 is simply a fraction of lifetime income calculated as $1/(1 + \beta)$. (For more details, see the Appendix.)

In the following discussion, we can think of the agents as lifetime income maximizers. In a democracy, I assume that the equilibrium outcome is the efficient competitive equilibrium; that is, in period 1 the government allows $M$ firms to operate, given that they are more productive than $N$ firms, while in period 2 the representative entrepreneur, being also the pivotal policy maker and the pivotal economic agent, chooses to allow the more productive $N$ firms to operate. This assumption is made to simplify the discussion with regard to a democracy and focus on growth in an oligarchy, which is crucial for this paper and more relevant for discussions on the development of most middle-income economies. This assumption is without loss of generality and the conditions that guarantee it are quite natural and will be discussed in section III. The outcomes in a democracy can be summarized in Table 1.

In an oligarchy, the timing of events is as follows:

(i) At $t = 1$, the elite decide whether to democratize or not.

(a) If yes, the economy enters equilibrium in a democracy and the elite receive an additional reward, $R_1$.\(^1\)

(b) If no, the elite pays a cost, $C_1$, to defend the oligarchy. Then the events described in the steps below will happen.

(ii) The elite decide whether to allow $M$ firms or $N$ firms to operate.

(iii) The elite decide whether or not to implement the rule of law and to commit to a tax rate, $\tau_1$.

(iv) Owners of firms decide whether to produce or not.

(a) If $M$ firms are allowed to operate, the elite decide whether to produce or not.

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\(^1\) $R_1$ can be considered as a reputational reward or an income reward from the outside world (e.g., other economies and/or international organizations that encourage democratization).
(b) If N firms are allowed, entrepreneurs decide whether to produce or not.

(v) The elite tax entrepreneurs and transfer the tax revenue to themselves.

(a) If the elite commit to a tax rate in step (iii), the tax rate is \( \tau_1 \).

(b) If not, the elite now set the tax rate at \( \tau_1 \).

(vi) If the economy is still an oligarchy at \( t = 2 \), then the same events occur as in \( t = 1 \).

The optimal actions of all agents can be solved by backward induction. Since events in period 2 are the same as events in period 1, we can also use steps (i)-(v) to denote the events in period 2. Of course, the notations have to be changed accordingly so that the subscript of time-dependent variables represents period 2 (e.g., \( R_2, \tau_2, \) and \( C_2^o \)).

In step (v) of period 2, if the rule of law has been established and there is a committed tax rate, then the elite simply tax entrepreneurs at the rate \( \tau_2 \); if there is no rule of law, the elite can tax or expropriate the property of entrepreneurs at the rate they choose. I assume that there is an upper bound of the tax rate, denoted as \( \overline{\tau} \), subject to the state’s capacity as defined by Besley and Persson (2009). Meanwhile, there is a lower bound of the tax rate that the elite can commit to, denoted as \( \underline{\tau} \), in order to model the limited commitment ability. This assumption applies to both periods and is formally stated below as assumption (2). \( \tau_t \) is the final tax rate, so it can represent the committed tax rate and also the reset tax rate.

\[
\tau_t \in [\underline{\tau}, \overline{\tau}]
\]  

(2)

In period 2, given the expected tax rate, \( \tau_2 \), if N firms are allowed to operate, entrepreneurs can pay a startup cost, \( C \), to produce. If they produce, their expected income is \( (1 - \tau_2) Z_2^n - C \); if not, their income is zero. If M firms are allowed to operate, the elite’s expected income is \( Z_2^m - C \) if they produce and zero if they do not. Given the assumption that \( C \) is small enough in period 2 when M firms are allowed, the elite always wants to produce. In comparison, when N firms are allowed, entrepreneurs only want to produce if they expect the tax rate to be low enough; that is, \( \tau_2 \leq 1 - C/Z_2^n \), which leads to \( (1 - \tau_2)Z_2^n - C \geq 0 \). Obviously, allowing N firms to operate without incentivizing entrepreneurs to produce leaves everyone without income, which is never optimal. Either the elite is able to commit to a low
Table 2. **Outcomes in the Oligarchy in Period 2**

| Condition                        | Choice                          | Elite Income | Entrepreneur Income | Output |
|----------------------------------|---------------------------------|--------------|---------------------|--------|
| Democratization                  |                                 | $R_2$        | $Z_n^a - C$         | $Z_2^n$|
| Oligarchy with innovation        | $\tau_2Z_n^a - C_2^o$          |              | $(1 - \tau_2)Z_2^n - C$ | $Z_2^n$|
| Oligarchy without innovation     | $Z_m^n - C - C_2^o$            |              | 0                   | $Z_2^n$|

Source: Authors’ compilation.

Table 3. **Optimal Choice in Period 2**

| Condition                        | Choice                          | Elite Income |
|----------------------------------|---------------------------------|--------------|
| $C_2^o + R_2 > \max\{\tau Z_2^n, Z_m^n - C\}$ | Democratization                | $R_2$        |
| $\tau_2Z_2^n > \max\{C_2^o + R_2, Z_m^n - C\}$ | Oligarchy with innovation      | $\tau_2Z_2^n - C_2^o$|
| $Z_m^n > \max\{C_2^o + R_2, \tau Z_2^n\}$      | Oligarchy without innovation   | $Z_m^n - C_2^o$|

Source: Author’s compilation.

Under which conditions do the elite choose democratization? Under which alternatives do the elite choose to stay in an oligarchy but allow for innovation? First, an oligarchy with innovation is not always an available choice, while democratization and an oligarchy without innovation are always possible choices. To choose an oligarchy with innovation, it must be that $\tau_2 \leq 1 - C/Z_n^a$. Remember that assumption (2) says that $\tau_2 \geq \tau$. Only if $\tau \leq 1 - C/Z_n^a$ is it possible to commit to a tax rate, $\tau_2$, that is low enough to incentivize entrepreneurs to produce, but not so low as to make the commitment impossible. In this case, the highest tax rate that both satisfies the state capacity constraint and is compatible with the incentive constraint, $\tau_2 = \min(\tau, 1 - C/Z_n^a)$, is the optimal tax rate for the elite. Second, when all three choices are possible, the one that gives the elite the highest final income is chosen. The choice depends on parameters such as $C_2^o$ and $R_2$. The different cases are summarized in Table 3.

Intuitively, when the return on democratization and the cost of defending an oligarchy are high enough, democratization is the optimal choice of the elite. Otherwise, an oligarchy is maintained. In this situation, if output from innovation and tax capacity are high enough, an oligarchy with the rule of law is chosen and innovation occurs. This is also conditional on being able to commit to a low enough tax rate. The final case, an oligarchy without innovation, is chosen when the conditions for the above two cases are not satisfied, or equivalently, when the return from imitation is high for the elite (though not for society as a whole). The elite enough tax rate to incentivize entrepreneurs or it chooses to operate M firms itself. There are two ways to commit to a low enough tax rate on entrepreneurs. The first is to implement the rule of law and set $\tau_2$ as in step (iii) of period 2. The second way, though not obvious, is to democratize in step (i) of period 2. After democratization, entrepreneurs know that they will run the government and therefore will not be taxed. In short, there are three possible outcomes in period 2, which are summarized in Table 2.
choose to allow only M firms to produce and do not need to establish the rule of law or commit to a tax rate—expropriation is optimal for the elite (in the off-equilibrium path) if an entrepreneur produces.

In period 1, given the same sequence of events as in period 2, the potential different choices and outcomes are similar. One simplification to the cases in period 1 is that imitation is always better than innovation, both for total output and the elite’s income, given the assumption $Z_m^1 > Z_n^1$. The elite never choose to allow for N firms to operate because operating M firms is always more productive and implies more income for the elite. The reason that in period 2 the elite may choose to forbid the more efficient N firms from producing is because the elite only claim a fraction of the N firms’ output, while in period 1, the elite claim all of the output of the more efficient M firms. There will be no innovation and the two possible outcomes are summarized in Table 4.

The income in period 1 is always higher if the elite choose democratization, given that there is a reward for democratization and a cost to defending an oligarchy. However, the continuation value from period 2 once democratization is chosen in period 1 is simply zero, and the continuation value from maintaining an oligarchy, $y_2^o$, is larger. The optimal choice of the elite in period 1 should be to maximize the elite’s lifetime income, which is the sum of income in period 1 and the discounted income from period 2. The income of the elite is summarized in Table 5. If the return from democratization and the cost of defending an oligarchy in period 1 is large enough, in terms of $R_1 + C_1^o \geq 1/(1 + r)y_2^o$, then democratization happens in period 1. Otherwise, an oligarchy will persist.

The output in both cases is the same in period 1 as democracy does not lead to increased output in the early stage of development. When an oligarchy is sustained until period 2, three cases—with or without democratization, or the rule of law—may emerge in period 2, depending on the conditions discussed above. However, in the long run, democracy leads to higher output. The different cases and corresponding conditions are summarized in Table 6.

### Table 4. Outcome in the Oligarchy in Period 1

| Elite Income | Entrepreneur Income | Output |
|--------------|---------------------|--------|
| Democratization | $Z_1^m - C + R_1$ | 0 | $Z_1^m$ |
| Oligarchy | $Z_1^m - C - C_1^o$ | 0 | $Z_1^m$ |

Source: Author’s compilation.

### Table 5. Elite Income

| Elite Income | $t = 1$ | $t = 2$ | Lifetime |
|--------------|---------|---------|----------|
| Democratization | $Z_1^m - C + R_1$ | 0 | $Z_1^m - C + R_1$ |
| Oligarchy | $Z_1^m - C - C_1^o$ | $y_2^o$ | $Z_1^m - C - C_1^o + 1/(1 + r)y_2^o$ |

Source: Author’s compilation.
Table 6. Summary of All Cases

| Conditions                  | $t = 1$                                | $t = 2$                                |
|-----------------------------|----------------------------------------|----------------------------------------|
| $C_0^1 + R_1$ large        | Democracy, $Z_m^1$                      | Democracy, $Z_m^2$                      |
| $C_0^1 + R_1$ small        | Oligarchy, $Z_m^1$                      | Oligarchy, $Z_m^2$                      |
| $C_0^2 + R_2$ large        | Oligarchy, $Z_m^2$                      | Oligarchy with innovation, $Z_m^2$      |
| $C_0^2 + R_2$ small $\tau$ | Oligarchy, $Z_m^2$                      | Oligarchy without innovation, $Z_m^2$   |
| $\tau$ large or $\tau$ small | Oligarchy, $Z_m^2$                      | Oligarchy without innovation, $Z_m^2$   |

Source: Author’s compilation.

D. Implications for the Middle-Income Trap

In the model, the middle-income trap corresponds to the case of an economy growing in period 1 through imitation but failing to switch to innovation in period 2. This happens in an oligarchy when the state’s tax capacity is too low for the elite to benefit from switching to innovation-based growth, or the commitment to a low enough tax rate to incentivize entrepreneurs to innovate does not exist even though the elite want to switch to innovation.

To escape the middle-income trap, several policies are necessary. First, the government needs to create an environment that facilitates the operation of innovative firms. This includes the protection of intellectual property and equality between the rights of firms that are politically connected to the government and private innovative firms. In the model, this corresponds to the elite choosing to allow for $N$ firms to produce in step (ii) of period 2. Second, the government has to guarantee that entrepreneurs will receive a large enough return on their investment in innovation without being taxed too heavily or having property expropriated. This requires policies such as a stable and reasonable tax rate, and the protection of property rights. Moreover, it requires the government’s commitment to such policies.

Whether the government is willing and able to pursue the right policies to escape the middle-income trap depends on the status of its political institutions. For example, the second condition described above, the guarantee of an entrepreneur’s return on innovation, does not exist in cases when an oligarchic government fails to implement the rule of law. On the other hand, it does exist when the rule of law is implemented in an oligarchy, as occurred in Hong Kong, China and Singapore, or when there is democratization, as occurred in the Republic of Korea. In the former case, the rule of law guarantees a reasonable tax rate and protects the property rights of private entrepreneurs. In the latter case, political power is shared with entrepreneurs following democratization so that the government represents entrepreneurs’ interests and provides the necessary protection for innovation.

Why do some economies implement the rule of law in an oligarchy and some economies democratize and eventually become rich, while others do not and ultimately fail to escape from the middle-income trap? These choices are determined by the fundamentals of different economies that can lead to divergence.
in political development and, eventually, economic growth. One such fundamental is state capacity. When state capacity is low, the elite do not benefit enough from innovation. Therefore, the elite have no incentive to implement the rule of law and other policies that encourage innovation since this would harm their existing interest in imitative production. This corresponds with so-called “weak states” in which the government lacks the power to tax and regulate the economy (Besley and Persson 2009). This problem hinders growth in poor economies as well as in middle-income economies.

The second fundamental is the ability of a government to commit. In the model, if the government implements the rule of law to commit to a tax rate, there is a lower bound to the tax rate. In reality, the government’s ability to commit depends on the trust of the citizens in the government. It takes time for a government to establish a good reputation with its citizens. If the government has implemented promised policies in the past, then citizens will be more likely to believe that the government will not increase the tax rate when output increases. Moreover, the ability to commit also depends on the cost of reneging. If the cost is high, then citizens are able to punish the policy maker for reneging. Punishment is more likely to happen when citizens hold sufficient political power. For example, in a democratic society, citizens may be able to replace the policy maker when it reneges on its promises. In economies where the cost of reneging is low, either because there is no way to punish the policy maker or because its reputation has not been firmly established, the policy maker may not be able to credibly commit to a low enough tax rate. Entrepreneurs will then rationally expect that the tax rate and/or probability of expropriation will be high and they will not invest in innovative production.

The third fundamental is the existing interest of the elite in imitative technology. If their interest is high, it is more likely that the elite will decide to maintain the political institutions and policies that favor their own businesses and prevent more productive and innovative firms from entering the market and reducing their economic rent.

In summary, the model illustrates which policies are crucial for escaping the middle-income trap and shows whether these policies can or will be implemented depending on the status of an economy’s political institutions. Political institutions, which are partly endogenous, are determined by fundamentals such as state capacity, the government’s commitment ability, and the elite’s existing interest. At the same time, these fundamentals and policy-making incentives can be changed through targeted foreign aid. Therefore, it is possible that international organizations can provide the right type of assistance to help an economy escape the middle-income trap. Foreign aid that focuses on short-run growth without taking into account related political developments and long-run impacts may be detrimental to an economy’s long-run growth. In section III, I will extend the model to allow for discussions of the impacts of foreign aid on short-run growth, political developments, and long-run growth.
III. Extension of the Model

In this section, the benchmark model is extended to study the impact of foreign aid, including which types of foreign aid can be helpful for an economy seeking to escape the middle-income trap. The robustness of the model is also discussed. Assumptions in the benchmark model are also discussed and the consequences of relaxing them or using alternative settings are considered.

A. Foreign Aid

Unconditional foreign aid may increase the total income in an economy while not changing the incentives that make the policy maker adopt the right policies and political institutions that will eventually lead to sustainable growth. On the other hand, foreign aid that is conditional on policies, political choices, and fundamentals may change the equilibrium outcome and the development path.

Foreign aid can be made conditional on the adoption of policies that encourage innovation and opening, such as conditional policy loans to promote an open capital market and the relaxation of restrictions on foreign direct investment. If more innovative firms (and perhaps international firms) are allowed to enter the market, then the technological progress and growth of middle-income economies will accelerate (see, for example, Bulman, Eden, and Nguyen 2014; and Han and Wei 2015). In the model, this corresponds to adding an extra return, $R^N$, in the step allowing for $N$ firms to operate.

In addition to directly changing incentives for policy making, it is also possible to influence the incentives of political choices that, in turn, affect policies. In the model, this corresponds to increasing the return on democratization, $R_d$, and raising the cost of defending an oligarchy, $C_o$. Foreign aid that strengthens civil society and democratic activities, or puts pressure on nondemocratic regimes, may not have a direct positive effect on short-run growth but may lead to political developments that allow for a more equal sharing of growth resulting from innovation. This can facilitate long-run technological progress and growth.

Finally, interventions that seek to change crucial fundamentals can also lead to the favored outcome. If the lack of state capacity is the problem, foreign aid that strengthens the tax regime or develops a formal sector that allows for more efficient taxation can be the solution. If the interest of the elite in maintaining inefficient industries is the reason for the prevention of innovation, free entry, and creative destruction, then foreign aid that seeks to reduce the interest of the elite in sustaining these industries can be effective. In contrast, interventions that help such industries increase short-run output may harm long-run political and economic developments, as shown in the following example.

In the early stage of development, an international organization decides to provide aid for imitative firms through loans designed to increase its capital and/or
improve its technology. This may increase short-run output, which implies that there
is an interest among the elite in keeping in place policies that protect imitative firms.
This can result in period 2 in the elite deciding not to encourage innovation, while
absent any such foreign aid the elite might have chosen to replace imitative firms
with innovative firms. The consequence of such aid is higher short-run output with
lower long-run output. Mapping this into the model, let us consider an increase of
$Z_m^1$ and $Z_m^2$ to $Z_m^1 + \delta$ and $Z_m^2 + \delta < Z_n^2$, without changing $Z_n^1$. The equilibrium
outcome without the aid is an oligarchy with the rule of law in period 2, since
allowing $N$ firms to produce is the same for the elite as keeping production with $M$
$firms ($\tau_2 Z_n^2 = Z_m^2 - C$). With the foreign aid, $\tau_2 Z_n^2 < Z_m^2 + \delta - C$, an oligarchy
without innovation is preferred by the elite and the final output decreases from $Z_n^2$
to $Z_m^2 + \delta$. The aid only improves output if the political institutions and policies
are held constant. However, it changes the incentives and the pivotal policy maker’s
political choice. Eventually, providing aid to imitative firms in the early stage of
development has a negative impact on long-run output.

Understanding the difference between short-run and long-run consequences
also allows for providing more efficient aid at a cheaper price. For example, aid that
encourages the government to democratize in the early stage of the development
may not have an immediate impact on growth, but it can have an impact in the
later stage of development. Naturally, one may argue that since democratization
does not improve output in the early stage of development, foreign aid can wait
until the economy enters the advanced stage of development. This logic is incorrect,
however, because the cost of intervention in the later stage can be higher. Consider
the following extension of the model. Suppose that without foreign aid, there is
no reward for democratization, $R_1 = R_2 = 0$, and at $t = 2$ the optimal choice
of the elite without the aid is an oligarchy without the rule of law. To help an
economy democratize and eventually achieve innovation-driven growth, aid that
is conditional on democratization, if provided at $t = 2$, has to increase $R_2$ to at
least $Z_m^2 - C - C_o^2$. If the aid is provided at $t = 1$, the following condition has to
be satisfied, $R_1 \geq -C_o^2 + 1/(1+r')(Z_m^2 - C - C_o^2)$, which makes democratization
attractive to the elite. If the aid provider discounts the cash flow with interest rate
$r'$, then its cost of providing the aid at $t = 2$ is $1/(1+r')(Z_m^2 - C - C_o^2)$ and at $t = 1$ is $-C_o^2 + 1/(1+r)(Z_m^2 - C - C_o^2)$. As long as $r'$ is not too large, it is cheaper
to provide aid at $t = 1$, though it does not immediately help growth. For example,
$r' = r$ is a sufficient condition. In fact, even if $r'$ is slightly bigger than $r$, it may
still be optimal to incentivize democratization in period 1 as it saves the elite from
paying the repression cost in period 1.

In summary, taking into account the political response and policy changes
is important to analyze the impacts of foreign aid. This knowledge allows
international organizations to design better aid programs that promote the growth of
middle-income economies and helps to avoid interventions that focus only on the
short run while leading to negative long-run outcomes.
B. Assumptions about Democracy

In section II, I assume that democracy leads to the laissez-faire competitive equilibrium in which the more productive firms (M firms at \( t = 1 \) and N firms at \( t = 2 \)) operate and there is no tax. It seems reasonable to assume that in a democracy, though the elite are no longer the pivotal policy maker, they still enjoy a high level of status and their property has not been expropriated by entrepreneurs. That said, it is interesting to think about what happens if entrepreneurs could expropriate the elite’s property in a democracy. At \( t = 2 \), the elite receive no income from production since only N firms operate; thus, there is nothing to expropriate or tax. At \( t = 1 \), the entrepreneur taxes the elite to the highest level such that the elite are still willing to invest in M firms, subject to the state capacity constraint, which is \( \min(1 - C/Z^n_1, \tau) \). Given \( C > Z^n_1 \), it is never profitable to run N firms at \( t = 1 \), so we do not need to consider a case in which the representative entrepreneur forbids the elite from running M firms and decides to run N firms. If we drop the assumption in the benchmark model about democracy and allow for a tax, then in period 2 there will be no difference, while in period 1 the elite’s income is lower. Thus, the qualitative structure of the paper does not change.

C. Uncertainty

In the benchmark model, there is no uncertainty. All agents have perfect foresight. It is reasonable to think that in reality there may be political uncertainty and risks in pursuing innovation. Given the linear feature of the model with regard to the production functions and the agent’s maximization problem, introducing uncertainties would change the model. The only difference is that the period 2 variables now represent their expected values, taking into account all possible realizations. Of course, if we introduce some curvature to the agent’s maximization problem, the results will be quantitatively different. However, the main results should stay the same if these changes do not affect the key assumptions; that is, innovation is still more attractive in period 2 when taking into account the risk aversion of entrepreneurs.

IV. Conclusion

This paper proposes a politico-economic theory for the middle-income trap. It studies the policies that help a middle-income economy switch to technological progress and sustainable growth led by innovation. It also analyzes the political institutions that allow for these policies. It discusses the fundamentals of an economy, including state capacity and the government’s commitment ability, that determine which political institutions endogenously emerge and whether an economy will implement the right policies to escape the middle-income trap.
This theory is also useful for studying the impacts of foreign aid not only on output in the short run, but also with regard to the political response of the government and the long-run impacts on political and economic developments. This can help international organizations to design efficient and low-cost aid programs, and identify those interventions that provide only short-term benefits while harming long-run development.

Many simplifications have been made in this paper in order to emphasize the primary logic and key message of the theory. For example, the outcome in a democracy is simply assumed to be the efficient competitive equilibrium. Future research is needed to make the theoretical model more realistic and to answer important real-world questions.

Moreover, the government’s commitment problem in an oligarchy is represented by a reduced-form parameter. It would be useful to properly model and study the commitment problem in order to better understand how the government can solve the problem and implement the rule of law, and how the rule of law as one commitment device interacts with democratization as the other commitment device.

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Appendix: Maximization of Lifetime Utility

An agent, $i$, maximizes the lifetime utility, subject to the lifetime budget constraint as follows:

$$\max \log c_i^1 + \beta \log c_i^2, \text{ s.t. } c_i^1 + 1/(1 + r)c_i^2 = y_i^1(p) + 1/(1 + r)y_i^2(p)$$

where $p$ represents choice variables other than consumption, which include policies and political choices when the agent is the pivotal policy maker, and the investment decisions when it is the pivotal economic agent. Obviously, the optimal solution to the above problem $\{c_i^1, c_i^2, p^*\}$ contains $p^*$ that maximizes $y_i^1(p) + 1/(1 + r)y_i^2(p)$ because it gives the highest lifetime budget and therefore gives the largest choice set of $\{c_i^1, c_i^2\}$. To know more about $p^*$, we can focus on the following problem:

$$\max y_i^1(p) + 1/(1 + r)y_i^2(p)$$