External Influences on Economic Reform: Reform as a Regional Public Good

by

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Abstract

We study a game between a group of rich country investors and a group of developing countries, who by adopting policy reform can raise the return to, and thus possibly attract foreign investment. We focus on the interaction between investors' incentives to acquire country-specific information on the incidence of reform and countries' incentives to undertake reform. Uninformed investors may still invest in the region based on a costless signal of the regional average return. In this case, reform is a regional public good. We show that equilibria exist with no investment and no reform, with partial reform and blanket investment by uniformed investors, and with partial reform and targeted investment by informed investors. However, it is almost impossible to sustain complete reform as an equilibrium.

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I. Introduction

Many countries have delayed or failed to implement reforms whose payoffs are sufficient to compensate any losers. An enormous literature has grown examining the political economy of reform. To date, the existing literature concentrates exclusively on how internal factors can delay or prevent reforms. In this paper, we take a new direction and model reform as a regional public good.

Our argument is simple. We assume that increased foreign investment comprises an important expected benefit from reform. Yet under plausible conditions, reform in one country can spill over into increased investment in another, possibly unreformed, country in the region. We present a model of the interaction between initially un-reformed, developing countries and initially non-discriminating, rich country investors. Countries decide whether to undertake costly reforms that raise the return to foreign investors and may attract valuable foreign investment. Foreign investors initially view a number of countries as belonging to a single homogeneous group. Investors can pay to acquire country-specific information concerning the incidence of reform, or remain uninformed and observe the average return to investing in the region (which is a function of the number of reformed countries). Reform by any one country in the group creates a positive spillover for all its co-members through the average return. If all investors are informed, and accurately distinguish each individual country, reform will not have these spillover effects. A country's reform decision thus depends on foreign investor information costs and the reform plans of the other countries in one's pool, in addition to the already widely studied internal factors.[1]

The model highlights the external, strategic dimension of the reform decision that does not appear in the existing literature. In order to isolate the effects of this potential spillover, we keep the rest of the model simple. We assume that all countries face the same cost of reforming, that all rich-country investors are identical and study pure strategy equilibria. Yet we are able to generate

a rich set of results from this basic model that have real world implications. Perfectly informed investors and complete reform, for example, cannot co-exist in equilibrium because pervasive reform eliminates the value of country-specific information. An equilibrium with all uninformed investors and no reformed countries can exist due to the public good aspect of reform even when reform would attract substantial foreign investment. Further, equilibria exist with partial reform, where uniformed investors put money into all the countries in the region. This type of equilibrium, where different countries are treated the same by foreign investors, is consistent with the complaints often heard from politicians during crisis episodes that their country is paying for the transgressions of a neighbor. We also find that multiple equilibria arise, due to a persistent coordination problem among countries.

The rest of the paper is organized as follows. Section II reviews some of the main existing literature on delay in policy reform, along with some other papers that have aspects in common with our approach. Section III sets out the model describing the players, their strategy sets, and payoffs. Section IV presents a detailed example and discusses the main results we find. Section V describes several useful possible extensions of the model and contains our conclusions.

II. Literature

The literature on reform and the delay of reform over the last 10 years is extremely large.[2] Here we review some recent and related work. Alesina and Drazen (1991), and Drazen and Grilli (1993) model delayed reform as the result of a war of attrition over the distribution of the costs of reform.[3] Fernandez and Rodrik (1991) attribute non-reform to a status-quo bias arising from uncertainty about the benefits of proposed reforms. Kuran (1987) argues that policy persistence

and delayed reform results from preference falsification. Orphanides (1992) and Leitzel and Weisman (1999) argue that the delay of reform comes from optimal waiting. Chang (2001) models delay in reform as stemming from the government's need to improve its reputation sufficiently to make the reform credible when implemented. Finally, Tornell (1998) provides a unique perspective on reform, modelling it as a costly pre-emptive strike by one elite group in a society against other elite groups.

The existing literature does not consider strategic interaction among neighboring countries as an explanation for the delay of reform. Our contribution consists of examining the implications of spillovers for the reform process. In our model, reform might not occur either because foreign investors are expected to not notice, or because reforms in neighboring countries already attracted foreign investment.

Some recent papers outside the delayed reform literature also relate to our work.[4] Levine and Martinelli (1998) discuss the choice of a single country to adopt good or bad institutions when faced with a continuous stream of potential foreign investors who cannot perfectly observe the country's choice. Tirole (1996) models the existence, maintence and duration of a collective reputation, where the actions of one member affect the reputation of all the group members. Calvo and Mendoza (1999) study how the decision of investors to pay for country specific information changes as the number of countries in which to invest grows. Our model is similar in some respects to each of these papers. We assume that a fixed number of countries decide whether to reform, that investors can perfectly observe this choice at a price, and that in the absence of this costly, country-specific information, investors treat the individual countries as a homogenous group.

III. Model

There are M developing countries in a regional group, indexed j=1.....M, and N rich country investors, indexed i=1.....N. Developing countries value foreign investment and undertake reform to attract foreign investment by raising the rate of return on investment projects in the country.[5] Rich country investors find projects in a reformed country attractive relative to the safe return from home country investments but prefer the rich country return to investing in an unreformed country. Investors decide to either acquire costly country-specific information about the occurrence of reform or simply base decisions on the expected average return on investment in the region. Based on the information they aquire, investors allocate their funds to one or more countries in the region or invest at home. Table 1 summarizes the notation used in the paper.

III.a. Countries

Each country makes a choice to reform or not, and this is their only decision in the game. We do not model the political process behind the reform decision, but simply assume it to be made by the incumbent government (of whatever type). The regime does not value reform directly, but rather the foreign investment reform may attract.[6] Developing country governments clearly value foreign investment. Rodrik (2001) writes, "foreign trade and investment have become the ultimate yardsticks for evaluating the social and economic policies of governments in developing countries. Just mention 'investor sentiment'... and policymakers will come to attention in a hurry".

Reform is a discrete action; that is, we do not allow partial reform. For simplicity we

consider only pure strategies regarding reform and let r_j equal one if country j reforms, with $R = \sum r_j$ being the number of reformed countries in the region. Let the total amount of funds available to rich country investors be T, and let T_j be the amount of foreign investment in j. The government of country j receives utility from this investment of $U_j(T_j) = T_j$ for all j. Let the cost of reform be $\delta > 0$, which we assume is the same for all countries and known by investors. A regime compares its expected marginal utility of reform with the cost δ. We assume that any country would reform if it could capture all the potential foreign investment, $T - \delta > 0$, but that internal benefits alone are insufficient to motivate the regime to initiate reform.[7] An unreformed country can receive investment funds if some investors do not purchase country-specific information and enough other countries reform.

III.b. Investors

Investors are risk neutral and each has an equal share of wealth, T/N.[8] The investor can invest in one or more of the countries in the region or invest at home, and allocates her portfolio to maximize the expected return. The average rate of return in a reformed country is H while the average return in an unreformed country is L. The safe rate of return from investing in the rich country is S. A natural assumption is $H > S > L$. The return on investment in country j depends only on the occurrence of reform in country j, so investment in strict terms is not a public good for the region. The publicness occurs because reform by any country raises the average rate of return in the region and some investors may base their decisions on the level of the average return.

Specific information about a country's reform status is costly. That is to say, investors cannot easily observe whether a country has actually reformed. No head of state is likely to

publicly announce, “our government and economy is protectionist, backward and corrupt.” Countries that do not plan to reform can at minimal cost adopt the outward trappings of reform: appoint ministers with the proper titles, pass legislation or issue decrees which appear to affect reform. Investors must incur costs to go beyond this facade and learn which countries in a group have actually undertaken reform.

We assume that investors can either purchase country-specific information or simply observe the expected average return on investment in the region. Uninformed investment can be thought of as buying an index fund that passively invests in all the countries in the region and does not charge a fee. In contrast, informed investment can be thought of as buying an actively managed fund that undertakes costly research and invests only in the reformed countries, but charges a percentage fee.[9] We call investors who purchase country-specific information *discriminating* investors and those who do not *pooling* investors. Let C be the cost to an investor of acquiring this information, and let B be the number of discriminating investors. All pooling investors learn the expected average return to investing in the region $\theta = [RH + (M-R)L]/M$, and treat all countries in the region alike.

Investors’ allocation of funds based upon the information they receive is straight-forward. Discriminating investors invest in the region if $R > 0$, and invest at home if no countries reform. Pooling investors compare the expected average return θ and the safe return, S, investing in the region if $\theta \geq S$. Assume pooling (discriminating) investors divide their funds equally among all countries (all reformed countries) if they invest in the region. Investors’ decision to become informed depends on the number of countries they believe will reform and the cost of information. If the cost of information is sufficiently high, $C > H - S$, investors will never purchase information.

III.c. Order of Play

We consider a one shot reform and investment game. Reform and investment decisions are simultaneous, and thus uninformed investors cannot free-ride on the actions of informed investors.[10] The sequence of actions is as follows:

1. Countries simultaneously decide whether to reform, and investors (without observing the reform decisions) simultaneously decide whether acquire costly information about the incidence of reform in each country.
2. Reforms are implemented and investors receive their information about reform; pooling investors observe θ while informed investors learn the exact identity of the reformed countries.
3. Investors simultaneously allocate their funds.
4. Countries and investors realize their payoffs.

Figure 1 displays a schematic representation of the order of play.

IV. Equilibrium

We examine in this section the effects of strategic interaction between investors and countries and discuss the Nash equilibria of the model. We focus on the effect that information concerning reforms has on the prospects for reform and how the regional public good effect of pooling investors can block reform in our model. We first consider the case where the cost of information is low enough that investors might possibly become informed, $H - C \geq S$, and then consider $H - C < S$.

IV.a. Investor Payoffs

We begin with investors' decisions. Figure 2 displays the payoffs for discriminating and pooling investors as a function of the number of reformed countries, R. Discriminating investors receive H - C if R > 0 and S - C if R = 0, and so will invest in the region if any countries reform. The average return in the region rises steadily as countries reform from L when R = 0 to H when R = M. Pooling investors earn S or θ, whichever is higher. Let R^p be the value of R which equates θ to S,

$$R^p = M \cdot (S-L)/(H-L) \qquad (1)$$

R^p is the minimum number of countries which must reform to induce pooling investors to invest in the region. Comparison of the returns for pooling and discriminating investors demonstrate that investors will not become informed when either R = 0 or R = M. The first case is intuitive and corresponds to a lack of profitable investments to make information worth the cost. The second case is less intuitive. Information is equally valueless though when all countries reform; uninformed investors cannot make a mistake in this case and earn H by investing in the region, while informed investors earn only H- C. Thus investors will only ever become informed with partial reform.

The maximum number of countries which can reform without undermining the incentive of investors to pay for information equates the average payoff θ with H - C. Let R^i be the value of R which equates θ with H - C,

$$R^i = M \cdot (H - L - C)/(H - L). \qquad (2)$$

R^i is the maximum number of countries which can reform without eliminating investors' incentive to become informed. The cost of information and the safe rate of return affect investors' incentive to become informed. An increase in the safe rate of return raises R^p and increases the

incidence of reform needed to attract pooling investment to the region. An increase in the cost of information reduces R^i and makes pooling more likely; indeed, if $H - C < S$ investors will never purchase information.[11]

IV.b. Country Payoffs

Country j's payoff from reform depends on the amount of investment j can attract with and without reforming, and this depends on the number of informed investors B, the number of countries besides j that reform, R_{-j}, and whether uninformed investors invest in the region, $\theta > S$. Country j's payoff if it reforms is

$$B \cdot T/[N \cdot (R_{-j}+1)] + (N-B) \cdot T/(N \cdot M) - \delta_j \quad \text{if } \theta > S, \quad (3a)$$

$$B \cdot T/[N \cdot (R_{-j}+1)] - \delta_j \quad \text{if } \theta < S. \quad (3b)$$

The payoff for country j if it does not reform is

$$(N-B) \cdot T/(N \cdot M) \quad \text{if } \theta > S, \quad (4a)$$

$$0 \quad \text{if } \theta < S. \quad (4b)$$

Country j receives funds from discriminating investors, $B \cdot T/N$, only by reforming. All countries in the region share the funds of pooling investors when the average return signal is favorable, $\theta \geq S$. Pooling investors' funds create the public good aspect of reform. Reform does not create spillover benefits for investment in the model; that is, reform in j does not make investment more productive in j'. Countries reform if the value of the funds they gain from reform exceeds the cost. Unreformed countries can free ride on the reform efforts of other countries when enough other countries reform to induce pooling investors to invest in the region.

Figure 3 displays investment in country j as a function of the number of countries besides j

which reform, R_{-j}. Panel a shows the case of all informed investors while panel b displays the all pooling investors case. Informed investors provide country j with a strong incentive to reform because j can receive investment only by reforming, but the incentive to reform diminishes as the number of other reformed countries increases. All uninformed investors provide a weak incentive for reform. Reform does not increase the amount of investment country j receives except when j's reform induces pooling investors to invest in the region, which is depicted in the interval (R^p-1, R^p) in Figure 3b. Countries have an incentive to free ride on the reforms of others with pooling investors. Country j will reform if all investors pool if j expects to be decisive in inducing investment, that is, if $R_{-j} \in [R^p - 1, R^p)$, and an equal share of investment is worth the cost of reform, $T/M - \delta \geq 0$. Only the minimum number of countries needed to induce investment will reform in an equilibrium with all pooling investors.

The value of R^p allows us to distinguish two potential problems the region would face in reform. If $R^p > 1$, no country can make the average rate of return high enough to induce investment by unilateral reform. At least two or more countries must reform for pooling investors to invest; in this case countries in the region face a *coordination problem* in the face of pooling investors. If $R^p + 1 \leq M$, the number of countries needed to induce investment from pooling investors is less than the entire region and countries in the region face a *free riding problem* in this case. If reform in two out of three countries produces a $\theta \geq S$, each of the three countries would each like to be the one to avoid and free ride on the efforts of others. Both the coordination and free riding problems can delay reform in the region.[12]

IV.c. Pure Strategy Equilibria

Table 2 presents all the pure strategy Nash equilibria and the conditions for each set of strategies to comprise an equilibrium. Three types of Nash equilibria are possible. *(1) No Reform, No Investment*. If no countries reform, investors will not pay for information, as illustrated by Figure 2. This equilibrium exists as long as no country wants to reform when all investors are uninformed and no other country reforms. Satisfaction of one of two conditions ensures the existence of this equilibrium. The first is that reform by one country does not generate a sufficiently high average regional return to induce pooling investors to invest, $R^p > 1$. Coordination failure can prevent provision of the regional public good of reform when $R^p > 1$. Alternatively a no reform, no investment equilibrium exists even if $R^p \leq 1$ if no country wants to reform for an equal share of regional investment, $T/M < \delta$. In this case, no country will provide the public good because they must bear the full cost while only receiving 1/M of the benefits. Any no reform, no investment equilibrium is not Pareto optimal, because it is Pareto dominated by all informed investors and one country reforming (as long as H-C >S).

(2) All Informed Investors, Partial Reform. Equilibrium is possible with all informed investors only if the number of reforming countries does not exceed R^i. The number of countries which want to reform when all investors discriminate is T/δ, so the condition for the existence of this equilibrium is $T/\delta \leq R^i$. The incidence of reform across the region does not depend on the cost of reform; the lagging countries here do not have higher costs of reform. An equilibrium of this type, if it exists, is Pareto optimal.

(3) All Investors Pool, Some Countries Reform. An equilibrium is possible with all uninformed investors and investment in the region. Reform is a public good with pooling investors, so only the number of countries needed to attract investment will reform, that is, the

smallest number of countries which exceeds R^p. Two conditions must hold for an equilibrium of this type. First, the investors must not wish to purchase country-specific information when R^p countries reform. Comparison of (1) and (2) reveals that $R^i > R^p$ when $H - C > S$; this condition requires that the smallest integer greater than or equal to R^p must be greater than R^i. Second, countries must be willing to provide the public good for a share of the regional investment, $T/M \geq \delta$. An equilibrium of this type, if it exists, is Pareto optimal.[13]

IV.d. Implications

Several insights about reform emerge from the model. First, fully informed investors and universal reform is not an equilibrium. While discriminating investors provide countries with the maximum incentive to reform, universal reform undermines investors' incentive to become informed. Full reform and informed investors is not Pareto optimal, since it is dominated by full reform and pooling investors.

Second, multiple equilibria are possible, specifically the no reform - no investment equilibrium and one equilibrium with reform. A coordination failure may prevent reform throughout a region. The no reform - no investment equilibrium breaks down when $R^p \leq 1$, because a single country's reform is sufficient to induce investment in the entire region. A smaller value of S reduces R^p meaning that a paucity of good investment opportunities in rich countries mitigates the collective action problem in currently poor (unreformed) regions.

Third, universal reform is difficult to sustain as an equilibrium. Universal reform requires uninformed investors, but then foreign investment is a public good, and free riding prevents reform by all countries unless universal reform is necessary to attract pooling investment, $R^p > M$

- 1. Examination of (1) reveals that this occurs only when the safe rate of return is relatively high, $S \approx H$. Consequently a high rate of return with reform in the region or a low rate of return in rich countries makes full reform less likely. A high rate of return in rich countries is needed to make universal reform an equilibrium, but the high value of S exacerbates the region's coordination problem.

Fourth, only one type of equilibrium with reform is possible. That is, there cannot be equilibria with all discriminating and pooling investors can both occur. T/δ countries wish to reform with all discriminating investors, and this must be less than R^i for equilibrium with discriminating investors. Equilibrium with reform and all pooling investors requires $T/M \geq \delta$, so the two conditions are contradictory.

Finally, we have assumed that country-specific information is potentially valuable (i.e. that $H - C \geq S$). If the cost of information is sufficiently high that $H - C < S$ (perhaps because outsiders cannot determine which reforms are genuine), reform is exclusively a public good. The existence of an equilibrium with R^p reforming countries is more likely due to elimination of the possibility of investors purchasing country-specific information when R^p countries reform (recall that $R^p < R^i$).[14]

V. Discussion

Existing models of delayed reform are inward looking. In contrast we study an international dimension of delay, showing in a simple model how if foreign investment is the prize from reforming, uniformed potential investors make reform in a region a public good. From this insight it is but a short step to our results that the public good (reform) can be systematically

undersupplied. In our model, there are no - reform, no-investment equilibria, investment with partial reform equilibria (with either informed or uninformed investors), but absent one very special case, there are no equilibria with full reform.

Our model is simple and could be extended in several interesting directions, which we only mention here. First, we assume all countries receive an equal share of the region's investment funds. However, a particularly large country in the region may receive more than a proportional share of investment, and (assuming a constant cost of reform) large countries have a greater incentive to reform. Second, we could allow the cost of acquiring information to differ across investors, say one group of investors with a low cost of acquiring information, C_ℓ, while the second group has a higher cost, C_h, $C_h > C_\ell \geq 0$. Second, we assume that all countries face the same cost of reforming. An asymmetric cost of reform across countries affects the model in several ways. Most particularly, the presence of some countries with a high cost of reform makes an equilibrium with informed investors more likely. If $M - R^i$ countries have a prohibitively high cost of reform, country-specific information remains valuable to investors even with a large pool of investment funds. The presence of one or several countries with a low cost of reform also makes the provision of the public good of regional reform more likely when the collective action required is modest (R^p is small). On the other hand, a few countries with a high cost of information makes reform less likely when near universal reform is needed to get pooling investors to invest in the region.

Third, we assume that uninformed investors can simply observe the average productivity of investment in the region, θ. An extension could allow uninformed investors to receive a stochastic signal of average return. A stochastic signal could lead to regret on the part of

investors and countries. Investors may get less than the safe return, and countries might incur the costs of reform and receive no investment. Fourth, a multi-period extension to a game where reforms can be reversed could use our one shot game as a stage game. Fifth, some of the equilibria have investors treating substantively different countries identically when putting their money into a region, which leads naturally to the interesting issue of contagion. We plan in future work to develop a dynamic model of reform and investment that can address specifically the possibility of investors treating different countries identically, when deciding whether to take money out of a regime.

The international spillover effect of reform modeled here can help explain some puzzling cross country behavior that is not currently addressed in the existing delay of reform literature, such as entire regions (eg. Sub-Saharan Africa) that largely fail to produce reform.[15] If countries expect that investors are pooling, then reform is a public good that must be provided by a substantial number of countries in order to attract investment, if the region is large. That is to say, it becomes harder to agree on the voluntary provision of a public good as the number of actors increases.[16] Our model captures this effect in the no reform - no investment equilibria.

Finally, with the benefit of hindsight, we can identify regions where some countries reformed and others did not, yet all the countries received increased foreign investment. Latin America in the 1980's and Southeast Asia in the 1990's are cases in point.[17] Our model is again consistent with this apparently puzzling behavior in that there exists a range of equilibria with partial reform and pooling investors.

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Table 1: Summary of Notation

Domestic cost of reform in country j:		δ_j
Cost of acquiring country-specific information by investor i:		Ci
Rate of return in a reformed country		H
Rate of return in an unreformed country		L
Rate of return in the Rich country		S
Number of countries that choose reform		R
Average return in region		θ
Number of investors that purchase information:		B
Potential investment level of each investor i:	Ti	
Total investment pool:		T

Table 2: Pure Strategy Nash Equilibria

Equilibrium	Conditions
R = 0, B = 0	$R^p > 1$ or $T/M < \delta$
R = int(T/δ) - 1, B = N	int(T/δ) - 1 $\leq R^i$
R = int(R^p), B = 0	int(R^p) $\geq R^i$, $T/m \geq \delta$

Figure 1: Timing of Actions

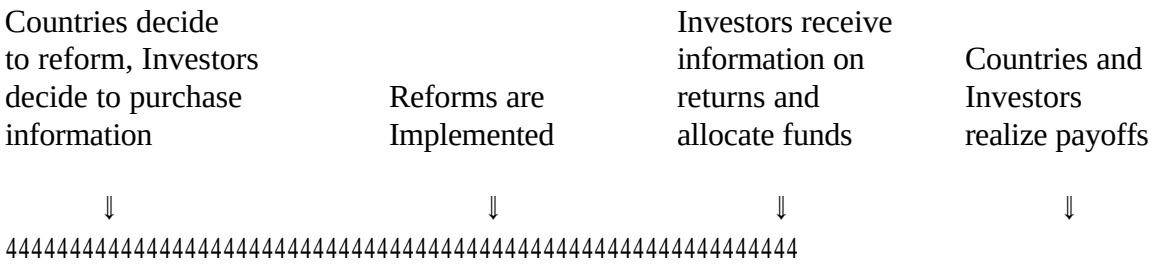


Figure 2. Rates of Return and Reforming Countries

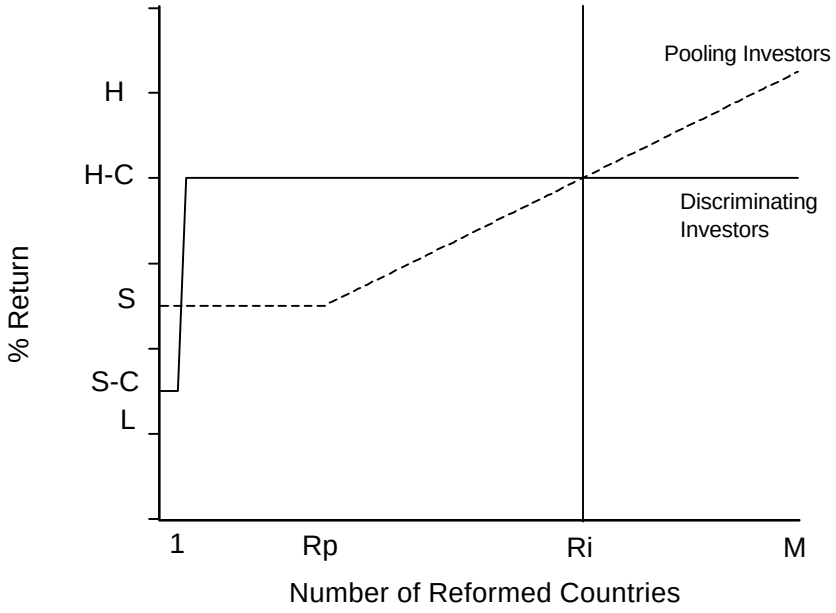


Figure 3a. Return to Reform in J Given Other Countries' Actions and Discriminating Investors

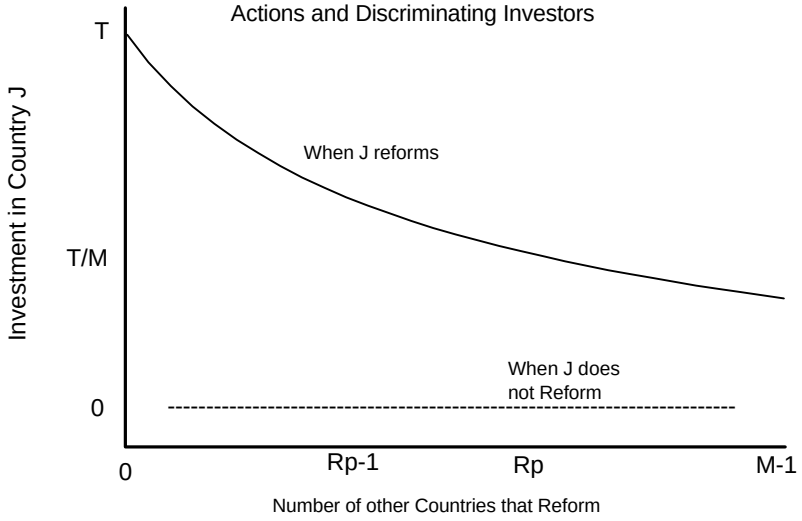
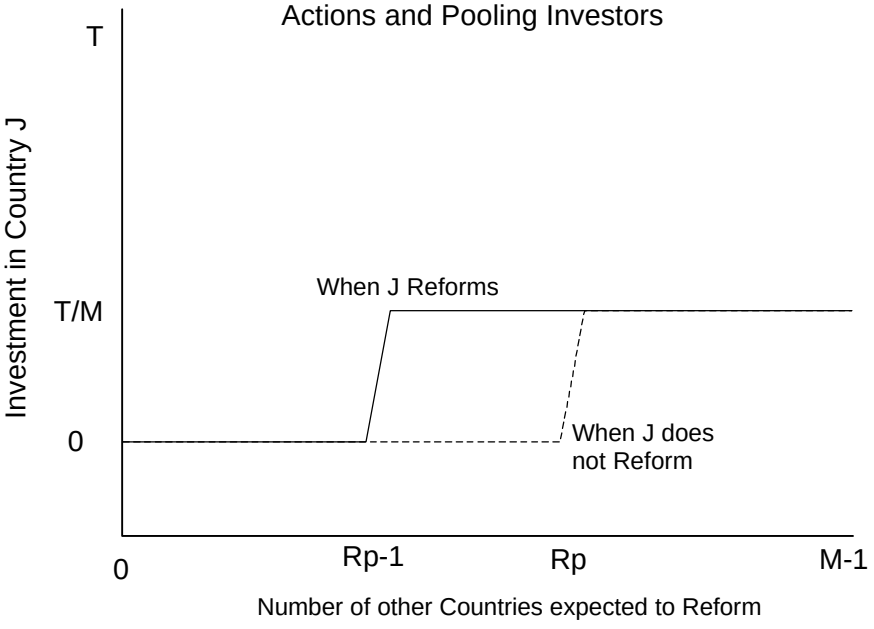


Figure 3b. Return to Reform in J Given Other Countries' Actions and Pooling Investors



Notes

1. We do not see our model as a substitute for the reform motivations given in the existing literarture, but rather as a complementy analysis that concentrates on a different source of delay.

2. See Drazen (2000, chapter 10) and Rodrik (1996) for surveys of the literature

3. Casella and Eichengreen (1996) extend the war of attrition model by studying how the possibility of attracting conditional foreign aid can affect the adoption of reforms.

4. There is also a literature on the optimal sequencing of reforms that we do not consider here.

5. The type of reforms considered in the literature (increased open-ness, commitment to the rule of law, reduction in corruption, etc.) are generally reforms that raise the return to investment.

6. This valuation can be for any one of several reasons: the resulting increased capital stock, faster economic growth and development, or tax revenue. We are thus considering the costs and benefits of reform for the country's regime, which may be unrepresentative of societal benefits. We do this to concentrate on the novel part of our model, how the interaction of investor information and other countries reform plans affect incentives for reform.

7. We do not require that the incumbent government discounts domestic welfare. Reform might require complementary foreign investment. For example, internal educational reform might require increased foreign investment in order to pay off.

8. We are thus implicitly assuming a borrowing constraint binds these investors. This assumption of borrowing constraints is relatively common in the literature, where it can often help to resolve empirical puzzles. For recent examples see, Vila and Zariphopoulou (1997), Constantinides, Donladson and Mehra (1998), Leung (2000) and Biederman (2000). Zhang (1997) studies the endogenous determination borrowing constraints.

9. Note that both country specific and region-wide mutual funds exist. A search of Fidelity Investments "Funds Network", a list of over 4000 open-ended mutual funds, shows over 20 Southeast Asian equity funds, 7 Latin American funds, one Middle Eastern fund and one African fund. There are individual country funds only for China, Mexico, and Korea. A cursory inspection of closed-end mutual funds shows that while both types of funds exist, the balance is tilted toward individual country funds. For example, there are closed end funds for Argentina, Brazil, Chile and Mexico and only two regional Latin American closed end funds. This finding is consistent with the idea that uniformed investors are more likely to pool via buying open-ended funds and informed investors more likely to target via trading closed end funds.

10. We assume that country-specific reports on economic reform are private information. Often this is the type of research which gets reflected in prices and which Grossman and Stiglitz (1980) argue investors do not have an incentive to undertake in equilibrium. Uninformed investors cannot free ride off the costly research of discriminating investors here because of the one-shot

nature of the game and the simultaneous allocation of funds by all investors. If the average return on investment in reformed countries decreases with the volume of funds invested in the country ($H(T_j)$ with $H' < 0$), informed investors have an incentive to disguise their actions. Hence simultaneous moves by investors might be a reasonable assumption in a one shot game.

11. We restrict attention in the text to the case where $H - C > S$ and investors might become informed. Clearly a managed fund would not charge a fee which priced itself out of the market.

12. The coordination aspect of reform identified here could form the basis of a regional war of attrition as countries wait for others to stop forward and provide the regional public good. The war of attrition model has previously been applied only within countries.

13. A fourth type of equilibrium exists involving mixed strategies. This equilibrium involves R^i countries expected to reform, in which case investors are indifferent between purchasing information and pooling. The net payoff to country j from reform, assuming j's reform decision does not affect pooling investors' investment decision, is $B \cdot T/[N \cdot (R_{-j} + 1)] - \delta$. The number of informed investors must adjust to make countries indifferent about reforming. The number of informed investors then must be $B = N \cdot \delta \cdot R^i/T$.

14. Note also that a large pool of investment funds, T, prevents an equilibrium with informed investors. Intuitively one might expect a large pool of potential investment to provide a strong incentive for universal reform. But this is not the case. The willingness of all countries to reform with all informed investors eliminates the need for investors to purchase information, and this allows countries to secure funds from pooling investors without reforming. The cost of information, C, also affects the likelihood of equilibrium with all informed investors. A lower cost of information increases R^i and makes $T/\delta < R^i$ more likely.

15. While it may be possible to modify traditional reform models to explain the clustering of unreformed countries, our model provides a natural explanation.

16. It is worth noting that in Fidelity's list of 4100 mutual funds, there are no country specific funds for Africa and only 1 regional fund. There are no single country African closed end funds either.

17. It is not an easy task to say conclusively who really reformed and who did not. Yet it does seem clear looking back that strong Chilean reform may have spurred region-wide foreign investment in Latin America, and reform in Taiwan and Korea may have done the same in Southeast Asia, even though some of the countries in each region had not enacted meaningful reform.