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Bringing the Fun(d) to reform:

A model of economic reform and the workings of IMF conditionality

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Preface

I acknowledge that there are many people deserving of gratitude at the end of this semester. A special thanks goes to the ESOP centre, for giving me a scholarship and a stimulating environment in which to write my thesis. Furthermore, access to the coffee machine has made all the difference.

I would like to thank my supervisor, prof. Halvor Mehlum, for his light-hearted guidance and for pointing me in the right direction when I was stuck (which happened more often than not). I am grateful to Morten Haabeth Grindaker[1], Johanne Bentzen Kværne, Pål Bergset Ulvedal and Thomas Lombardi Backer for useful comments, and to Jacob Stræte and Joachim Bråthen for providing me with pen and paper, respectively, when I needed it the most.

To Thomas, the coffee-captain at "Lille Latte", thank you for lightening my days with your contagious humour and for making my coffees extra strong. Finally, to all my office-mates and break-mates; thanks for all the stimulating conversations, keeping my mind busy with difficult dilemmas and stories of strange animals. This semester would not have been the same without you.

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[1]A special thanks to Morten Haabeth Grindaker for all his feedback and relentless critique of my introduction.

Summary

The political economy of reform has been an important area of research, ever since the worldwide recession in the 1980's following the second oil price increase. It became evident in many developing countries that the former policies were not conducive to continued economic growth. The detrimental effects of their former policies had been masked by a buoyant world economy, and in the aftermath of the crisis it became clear structural reforms were necessary to repair the economy. Yet, the reformers of the 80's had highly divirgent experiences from their efforts to reform, even though they faced similar economic circumstances and had a remarkably similar set of policies at the outset. It became evident that the same economic policies in face of the same economic circumstances can have very different results in different countries. The efforts to reform many of the Southern European economies make the understanding of the political economy of reform perhaps more relevant than ever.

In this thesis I characterize the levels of reform that will be implemented in response to different political conditions, highlighting the connection between the domestic politics and the economic responses to a reform program. In particular, I argue that when a reformist government faces opposition to a reform, the economic responses generated by the reform is crucial in building a constituency for its survival. This makes the sustainability of a reform susceptible to both virtuous and vicious circles. Where much of the existing literature is concerned with the timing and sequencing of the reform, my emphasis lies on the depth, or size, of the reform program. Based on my model I find that the probability that the reform will survive will determine the depth of the reforms being implemented by the reformist government. In this way, we can characterize the political scenarios in which a government will be able to implement a reform, and identify different "types" of reformers according to which level of reform they will implement and the probability that the reform will be sustained.

In the second part of this paper I will extend the model to include the International Monetary Fund (IMF), in the role of a structural adjustment lender using

conditionality to mitigate the problems of moral hazard in lending. By adding IMF conditionality to the model it will be possible to compare the outcomes of the reform efforts with and without an international ally, and draw some conclusions regarding the impact of conditionality on the reform process. Specifically, the model implies that conditionality can be conducive to deeper reforms in some circumstances, while being detrimental in other. Furthermore, in yet other cases it does not seem to matter much at all. Thus, the results from this model implies that any judgement about the soundness or justification of conditionality should be made with regard to the political conditions in the country on which it is imposed.

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1 Introduction

Ever since the worldwide recession in the 1980's, the political economy of economic reform has been an important area of research. Now, with many of the Southern European countries implementing substantial reforms in response to the debt crisis, understanding the mechanisms of reform is perhaps more relevant than ever.

The divirgent experiences of the developing countries' efforts to reform their economies in response to the worldwide recession inspired the emergence of a large economic literature on the topic of economic reform. Although many of the developing countries had a remarkably similar set of policies at the outset, the results of their reform efforts varied greatly. Some countries were able to sustain a program of reforms quite successfully for many years while in other countries, the authorities made repeated efforts to reform the economy with little results.

This thesis is an attempt to analyse some of the issues related to the political economy of economic reform, by focusing on the link between the domestic politics and the economic responses generated by the reform. The model I present shows that the sustainability of a reform can be susceptible to both vicious and virtuous circles, and that some governments will be able to overcome these problems while others will not. The focus of the discussion will be on how the domestic political scene and the behaviour of investors can determine which level of reform that will be implemented. A key element is that the same policies can have very different outcomes under different political circumstances, in regard to the ability of the reform to generate investment and the probability that the reform will be sustained. In the decision on which level of reform to implement, the government takes account of the political feasibility of the reform and its ability to generate economic responses that will build a constituency in favour of the continuation of

the reform.

Large parts of the existing economic literature on the political economy of economic reform is concerned with the appropriate timing and sequencing of the reform, and the importance of credibility. Notable contributions to the literature include that of Fernandez and Rodrik (1991), Dewatripont and Roland (1992) and Krueger (1993). One of the issues at hand is how conducive the political system is to the implementation of economic reform, and the importance of a reform program generating sufficient support in order to be sustained. A reform program with low credibility or political feasibility will not generate the same economic responses as a reform that is expected to be sustained. In turn, a reform program that fails to generate investment to alleviate the transitional burdens often associated with structural reforms may not be able to harness sufficient support for the continuation of the reform. Rodrik (1991) analyse the behaviour of investors in the face of a possible policy reversal, and show how policy uncertainty can work as a tax on investment.

The model I present in this thesis focus on the appropriate depth, or size, of a reform package rather than the timing of it. It is inspired by Mehlum and Moene (2010) and Rodrik (1991) and demonstrates how the government copes with the domestic opposition, and the importance of investors responding to the signals generated by a reform.

The reckognition that fixing the problems of the developing countries was not just a matter of short term stabilization, but rather that the fundamental structure of the economy was at fault, created a new role for international financial institutions such as the World Bank and the IMF. They began to require that countries recieving funds implement structural reforms, and in the mid 1980's the IMF introduced a new lending instrument aimed at countries facing longer-term difficulties and requiring more extensive structural adjustment. The role of the IMF as a structural adjustment lender and IMF's use of condtitionality has recieved much attention in the economic literature both theoretically and empirically.

Some of the theoretical contributions to the literature on IMF conditionality and structural adjustment include Drazen (2002), Joyce (2006) and White and Morrissey (1998). Drazen (2002) attempts to identify the cases where conditionality can play a key role. He presents a model of the political environment within

a borrowing country where there are "veto players" and special interest groups that can block reform. Joyce (2006) presents a theoretical model of IMF program implementation. In his model, nonperfect compliance to IMF conditionality is attributed to asymmetric evaluations of a programs discounted benefits between the government and the IMF. In a similar fashion, White and Morrissey (1998) presents a general framework of conditonality allowing for donor- and recipient preferences to vary over lending and conditionality. They present several cases differing in which dimensions the donor and the recipient preferences are in conflict. Their conclusion is a bit of a downer, as conditionality is shown to be ineffective in promoting reform and to have undesirable consequences in nearly every case.

With the exception of Drazen (2002), these models do not take much account of the underlying political scene in the reformist countries. By developing a model of economic reform and get a proper understanding of the model without the assistance from the Fund, we obtain a theoretical counterfactual with which to compare the outcomes when the reform program is tied to an IMF agreement. I believe that this approach will provide valuable insights into the workings of conditionality.

The analysis suggests that IMF conditionality will have different impacts on the reform efforts under different curcumstances, depending on the domestic political scene. It is shown that conditionality will be conducive to deeper reforms in some cases, while being detrimental in other. Furthermore, in yet other cases conditionality will not matter much at all.

1.1 Overview

Chapter 2 presents a model of economic reform in the absence of assistance from a structural adjustment lender. Using the logic of backward induction in sequential games, I show how the anticipation of the investors' and the political oppositions response to the reform determines the optimal level of reform for the government. In this way, we can characterize the political scenarios in which a government will implement a reform, and identify different "types" of reformers according to the level of reform they implement.

In chapter 3, the model is extended to include IMF conditionality. The discus-

sion relies on the taxonomy created in chapter 2, and compares the outcome with conditionality for the different types of reformers to the counterfactual outcome in the absence of an IMF agreement. Conditionality will only affect the outcome if lack of compliance is punished. The discussion is focused around the impact of conditionality on the incentives for the government regarding which level of reform to implement. The chapter concludes with a brief treatment of which countries that are more likely to turn to the IMF in the first place.

2   A model of economic reform

The general framework of the model is a government or an executive who wishes to reform the economy. Although an economic reform in most cases consists of reforms over several dimensions (fiscal, trade liberalization, elimination of distortions etc.), the reform in question is restricted to one variable. I will call this reform variable τ. We can think of τ as a package of reforms, defined continously over the interval $(0, 1)$.

Additionally, τ is assumed to have a direct impact on the returns on investment in a particular sector of the economy. A positive investment response to the reform is assumed to alleviate the transitional burdens and thereby increase the support for the survival of the reform.

The opposition do not need to be restricted to be the political opposition in party politics. Opposition to reform could also come from other parts of the government or political leadership, where disagreement over the reform program causes a power struggle within the government.

The timing of events is assumed to be as follows:

1. Government implements τ_1

2. Investors invest

3. Opposition decides to accept or reject the reform

4. If the opposition chooses to accept τ_1 is sustained

5. If the reform is rejected by the opposition τ_1 is sustained with probability λ. With probability $1 - \lambda$ the opposition takes power and the reform is reversed to its previous level of τ_0.

In the next sections I will present the agents of the model, starting with the investors before I go on to present the political game that is played between the government and the opposition to reform.

2.1   Investor behaviour

Investors are assumed to be risk-neutral and to have access to two markets in which to invest. They can invest in a foreign asset, assumed to be risk-free, and earn a return $R_f = r^*$ per unit of capital invested. Domestic investment yields a return of $r\tau$, and there is an entry cost per unit of capital of ϵ. Allowing the entry cost to vary between investors, we can seperate between different types of investors. Thus, $R_{Di} = r\tau - \epsilon_i$.

As each unit of capital can be invested either domestically or abroad the investment deicsion for an individual investor i, can be thought of as a simple portfolio choice, maximizing expected total return, $E(R_i)$, with respect to the portfolio weights α_i. As τ is the only uncertain element a priori, the expected return is given by:

$$E(R_i) = \alpha_i(rE(\tau) - \epsilon_i) + (1 - \alpha_i)r^* \tag{2.1}$$

From equation (2.1) it is straightforward to see that the optimal portfolio weight α_i is:

$$\alpha_i^* = \begin{cases} 1, & \text{if } rE(\tau) - \epsilon_i > r^* & \text{(2.2a)} \\ 0, & \text{otherwise} & \text{(2.2b)} \end{cases}$$

In the following the distribution of ϵ will be limited to two possible values, $\epsilon_1 < \epsilon_2$. We can think of this as domestic and foreign investors, where the latter have higher entry costs than the insiders. This is illustrated in figure 2.1.

Now, suppose that there are N investors in total, where a proportion n_1 are domestic investors with $\epsilon_i = \epsilon_1$ and a proportion $1 - n_1$ foreign investors with $\epsilon_i = \epsilon_2$. Furthermore, suppose each have an initial wealth of w, measured in some amount of dollars. $\alpha_i w$ is the amount of capital invested by investor i domestically.
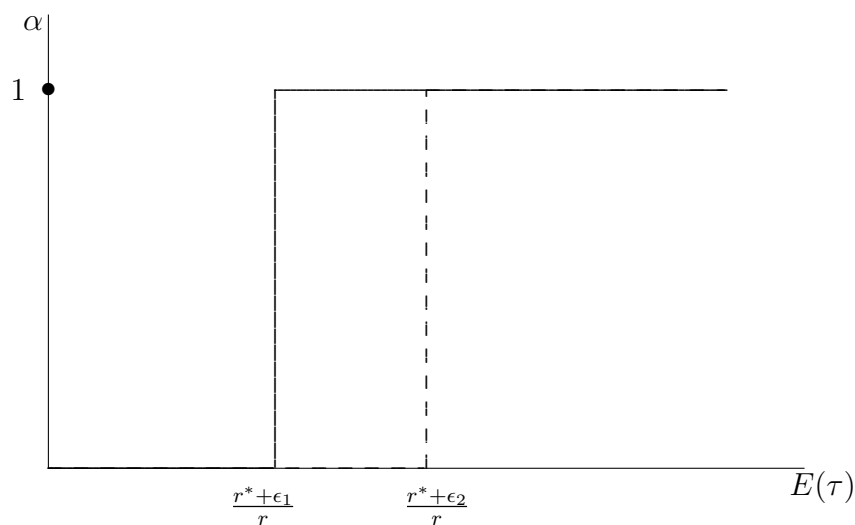
Figure 2.1: Investors optimal portfolio weight on domestic investment

Then, the total investment response, Δ, is given by:

$$\Delta = \sum_{i=1}^{N} \alpha_i w \qquad (2.3)$$

As there are two groups of investors according to their entry costs, each having the same amount of initial wealth w, the aggregate investment response Δ can take the following values:

$$\Delta = \begin{cases} \Delta_H = Nw, & \text{if } rE(\tau) - \epsilon_2 \geq r^* & (2.4\text{a}) \\ \Delta_L = n_1 Nw, & \text{if } rE(\tau) - \epsilon_2 < r^* \leq rE(\tau) - \epsilon_1 & (2.4\text{b}) \\ 0, & \text{if } rE(\tau) - \epsilon_1 < r^* & (2.4\text{c}) \end{cases}$$

(2.4a)-(2.4c) define the aggregate investment response as a stepwise increasing function of $E(\tau)$, where I have implicitly assumed that equality of the expected return between the foreign asset and domestic investment is sufficient to attract investment. This function is illustrated in figure 2.2.
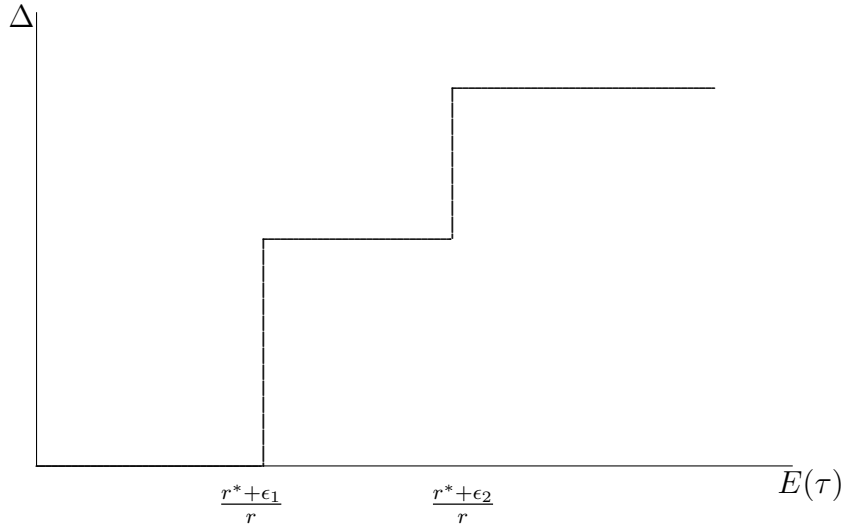
Figure 2.2: Aggregate investment response

2.2 The political game

This section presents the political game that is played between the government and the opposition, and the link between the economic responses to the reform program and the domestic politics.

2.2.1 Payoff functions

The government is assumed to derive utility from policy closer to its own preferred level τ^*. The utility of the government for a given level of reform is given by

$$\pi_G = \mu(1 - |\tau^* - \tau|) \tag{2.5}$$

The executive appreciates the policy gap with a parameter $\mu > 1$, denoting the marginal utility from a reduction in the gap $|\tau^* - \tau|$ when the executive is in possession of policymaking powers. We can think about μ as the added sense of responsibility for policy from being in a position of direct influence. If the executive loses power, the policy gap is appreciated with unity and the reform is reversed, yielding a utility of

$$\pi_G = (1 - |\tau^* - \tau_0|) = 1 - \tau^* \tag{2.6}$$

As μ is the additional marginal utility of policy when the executive is in power relative to when he is not, $\mu - 1$ can be interpreted as some kind of power rent.

The opposition has a similar payoff structure to the government. If the opposition comes to power they will get a utility of

$$\pi_O = \gamma(1 - |\tau_0 - \tau|) \tag{2.7}$$

where γ is the opposition equivalent to μ. However, the opposition is assumed to have an optimal level of reform, τ_0, equal to zero and to reverse any reform efforts should they come to power. Then, their utility will become

$$\pi_O = \gamma(1 - |0 - 0|) = \gamma \tag{2.8}$$

The opposition has the choice of accepting or rejecting the reform, τ_1, that is implemented by the government. By accepting the reform, the opposition will obtain a utility of

$$\pi_O(A; \tau_1) = \gamma(1 - |\tau_0 - \tau_1|) = \gamma(1 - \tau_1) \tag{2.9}$$

Should the reform be rejected by the opposition, a power struggle will follow. Then, if the opposition come to power the reform is assumed to be reversed to $\tau_0 = 0$. Additionally, should the opposition reject the reform proposal of the government and lose the power struggle that follows, they are assumed to incur some political costs c_p. Both the government and the opposition are assumed to be risk-neutral. Then, the expected utility for the opposition from rejecting the reform is

$$\begin{aligned} E(\pi_O(R; \tau_1); \lambda) &= \lambda(1 - |\tau_0 - \tau_1| - c_p) + (1 - \lambda)\gamma \\ &= \lambda(1 - \tau - c_p) + (1 - \lambda)\gamma \end{aligned} \tag{2.10}$$

where λ is the probability that the government will win the power struggle, a political cost of c_p will be incurred by the opposition and the reform will be sustained.

The expected utility for the government of implementing a reform τ_1 when it is rejected by the opposition becomes

$$E(\pi_G(\tau_1); \lambda) = \lambda\mu(1 - |\tau^* - \tau_1|) + (1 - \lambda)(1 - \tau^*) \qquad (2.11)$$

2.2.2 The probability of winning

As mentioned, when the reform is rejected by the opposition, whether or not the government will remain in office and the reform will be sustained is determined by a stochastic process. λ represents the probability that the government will win and the reform will be sustained, and is assumed to depend on the investment response generated by the reform. If the reform is successful in generating investment, entrenched interests are created in favour of the continuation of the reform. In other words, the support for the reform is assumed to be built ex post.

Hence, the probability that the reform will be sustained, $\lambda = \lambda(\Delta)$, is an increasing function of the investment response. For simplicity I will assume that the support for continuance of the reform is a linearly increasing function of the investment response.

$$\lambda = \lambda_0 + a\Delta \;,\; \lambda \in (0, 1) \qquad (2.12)$$

λ_0 is exogenously determined and measures the strenght of the government when the reform fails to generate any investment. a is then a measure of the impact of the investment response on the probability that the reform will be sustained.

Figure 2.3 illustrates the extensive form of the political game, reflecting the timing of events. After observing the aggregate investment response, and thus λ, the opposition decides to accept or reject the reform, obtaining respectively an expected utility $\pi_O(A; \tau_1)$ or $E(\pi_O(R; \tau_1); \lambda)$. The investors take account of the optimal response of the opposition when they respond to the reform. The government is able to anticipate both the optimal response of the opposition and the investment response when deciding on the level of reform to implement.

As we have just seen, how the investors respond a reform is crucial in determining the outcome of the political game. Because the game is sequential we can use the logic of backward induction. Therefore, before we go on to analyze the
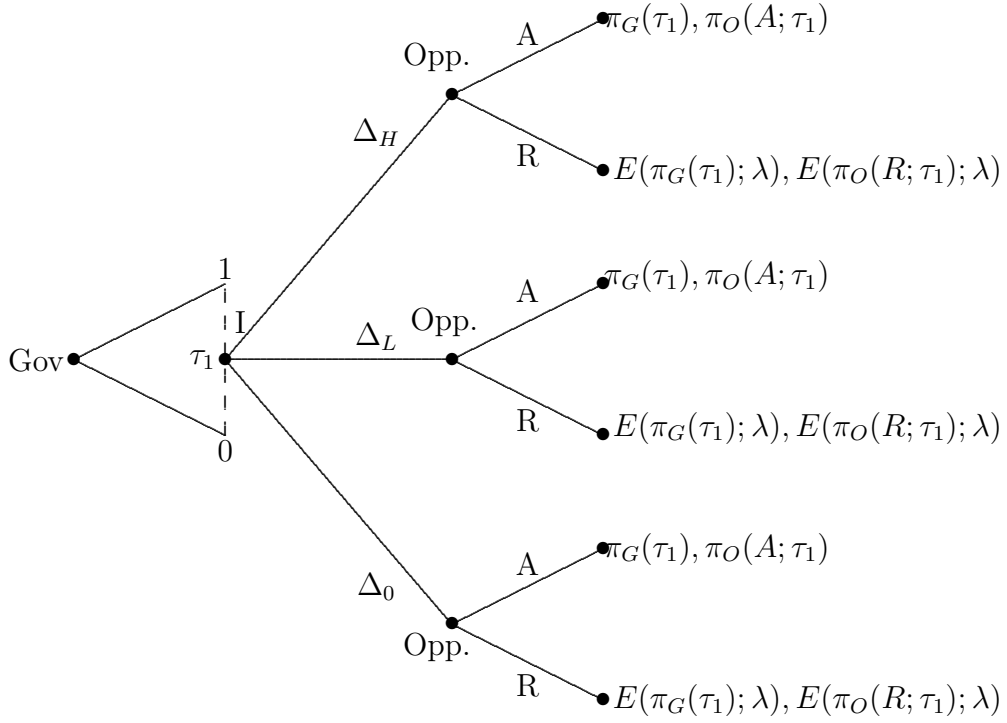
Figure 2.3: The political game in extensive form

optimal level of reform we need to establish how the investors will respond to a given level of reform and the optimal response for the opposition.

2.3 Optimal response for the opposition

Finding the optimal response function for the opposition is straightforward. Obviously, the opposition will accept any reform when the utility from doing so is higher than the expected utility from rejecting the reform. From the payoff functions of the opposition, we see that the optimal response will be to accept any reform such that

$$
\pi_O(A; \tau_1) \geq E(\pi_O(R; \tau_1); \lambda)
$$
$$
1 - |\tau_0 - \tau_1| \geq \lambda(1 - |\tau_0 - \tau_1| - c_p) + (1 - \lambda)\gamma
$$

(2.13)

which, after reorganizing the terms and inserting for $\tau_0 = 0$, becomes

$$\tau_1 \leq \frac{\lambda}{1 - \lambda} c_p - (\gamma - 1) \equiv \bar{\tau} \tag{2.14}$$

Equation (2.14) shows the tradeoff for the opposition between challenging the government in the hopes of obtaining the power rent $\gamma - 1$ and a policy gap of zero, and the expected political costs from challenging the government. A more power hungry opposition will be more aggressive and it will be more difficult for the government to reach a compromise. High political costs from challenging the government and a low probability of coming to power will make the opposition more lenient and abstain from challenging low levels of reform. The political costs c_p can be thought to vary from a shot to the head in the most extreme cases, and a mere embarrasment in the more moderate ones.

As λ can take different values depending on the level of investment, the highest level of reform that will be accepted by the opposition, $\bar{\tau} = \bar{\tau}(\lambda)$, will be a function of the investment response as well. A positive investment response will increase the support for continuance of the reform, raising the expected political costs from rejecting the reform and make the opposition more lenient and willing to accept higher levels of reform.

2.4   Optimal investment response

In section 2.1 we saw that the investors will choose their portfolio weights according to how the expected value of τ compare to the relative rate of return of the foreign and the doemstic asset. The higher the expected level of reform, the better the investment response. The optimal portfolio weights for the investors depend on the probability that the reform will be sustained. This probability is in turn determined by the investment response. Hence, there are positive externalities from the investment response on the political game. Assuming that there are many relatively small investors, each one will not internalize the marginal effect of his investment on the outcome of the political game. The main focus now is to show how the anticipation of the aggregate investment response will affect the investment of an individual investor and in turn the probability that a reform will
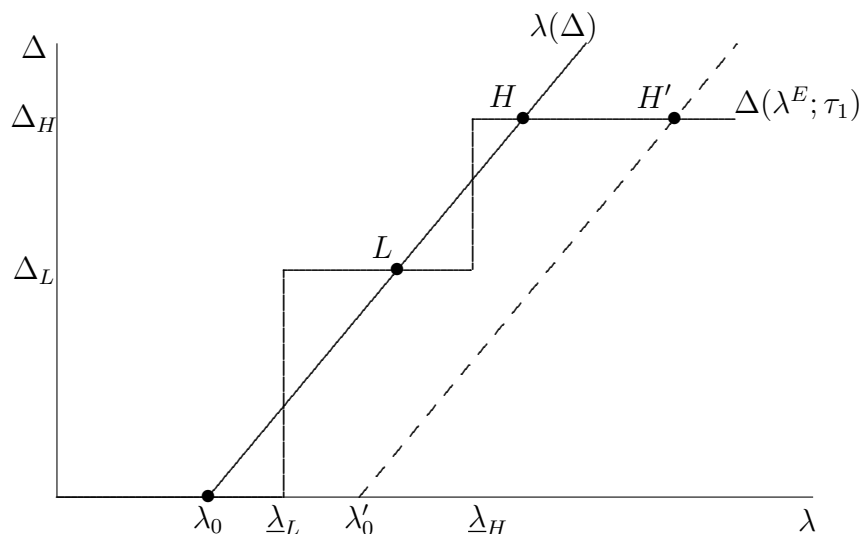
be sustained.

Figure 2.4: Possible equilibria for a given τ_1

As the probability that a given reform will be sustained is increasing in the aggregate investment response, and the optimal portfolio choice of an individual investor is a function of this probability we may get a case of multiple locally stable Nash equilibria. The line denoted $\lambda(\Delta)$ shows how the probability that the reform will be sustained vary with the investment response, and has a slope of $\frac{1}{a}$. The stepwise investment response function we have seen before. As λ is a function of the aggregate investment response, for a given level of reform each investor will respond to the reform according to their beliefs about the reaction of the other investors. Thus, $\Delta = \Delta(\lambda^E; \tau_1)$, where λ^E denotes an anticipation about the probability that the reform will be sustained.

In section 2.1 we learned that in order for domestic investment to become profitable, the expected value of the reform variable τ needs to exceed the relative rate of return between the risk-free foreign asset and the domestic asset, adjusted for the entry costs. i.e.

$$E(\tau) \geq \frac{r^* - \epsilon_i}{r} \tag{2.15}$$

If the reform is expected to be rejected by the opposition, the expected value of τ will be equal to $\lambda\tau$. Hence, for a given level of reform, the probability that

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it will be sustained needs to be at least $\underline{\lambda}_L = \frac{r^* + \epsilon_1}{r\tau_1}$ in order to make the domestic investors consider investing domestically. Similarly, for the reform to generate investment from the foreign investors as well, the probability that the reform will survive must be at least $\underline{\lambda}_H = \frac{r^* + \epsilon_2}{r\tau_1}$.

If the exogenously determined strenght of the government λ_0 is below $\underline{\lambda}_L$, there can be three locally stable equilibria. In this case, the beliefs of each individual investor about the investment decision of the other investors will determine the outcome.

The first equilibrium is point λ_0 where the fear of reform reversal deters both types of investors from investing in the reform sensitive project. The low confidence in the survival of the reform and the low probability that it will stand is the result of a self-fulfilling prophecy. Thus, in this equilibrium

- the fear of a rejection by the opposition and low confidence in the aggregate investment response makes the investors sceptical about the survival of the reform.

- rejection of the reform becomes less costly for the opposition as the expected political cost of doing so is lowered.

- the reform will be sustained with probability λ_0 if it is rejected by the opposition. With probability $1 - \lambda_0$ the reform will be reversed.

The second equilibrium is in point L, where higher confidence in the survival of the reform attracts investment from the domestic investors but not from the foreign investors. This is a locally stable equilibrium as the probability that the reform will stand $\lambda = \lambda_0 + a\Delta_L \in (\underline{\lambda}_L, \underline{\lambda}_H)$. Therefore, both the domestic and the foreign investors have made the optimal investment decision given the actions of the other investors. In L:

- the domestic investors' confidence in the credibility of the reform is sufficient to generate a moderate investment response. The investors with higher entry costs remain sceptical.

- relative to equilibrium λ_0, the positive investment response makes it more costly for the opposition to reject the government and higher levels of reform will be accepted.

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- the reform will be sustained with probability $\lambda_0 + a\Delta_L$ if it is rejected by the opposition.

In the third equilibrium, in point H, the high confidence in the credibility of the reform and the high probability that it will be sustained is the result of a self-fulfilling prophecy. Here, also the investors with high entry costs are convinced that the reform will generate high aggregate investment. Thus, in H:

- the high confidence in the survival of the reform generates a high investment response.

- increasing the support for continuance of the reform, the high investment response makes the opposition more lenient.

- the reform has a high probability $\lambda = \lambda_0 + a\Delta_H$ of being sustained.

As mentioned, the investment response is drawn for a given value τ. If a lower level of reform is implemented, the investors require a higher λ in order to invest in domestically and the investment response function shifts to the right. Thus, for a too low level of reform, both the H and the L equilibria will disappear.

The dashed line, in combination with the investment response function, shows that a strong government with a high λ_0 may be able to implement a reform where H' is the only equilibrium. In this case, λ_0' is sufficient for an individual domestic investor to invest independently of the aggregate investment response. With this level of reform, all domestic investors will find it optimal to invest in the domestic asset. Hence, an outcome with no investment cannot be an equilibrium when $\lambda_0 > \underline{\lambda}_L$.

Furthermore, the investment of the domestic investors will increase the support for the reform, increasing the probability that it will be sustained to $\lambda_0' + a\Delta_L$. As it is drawn in figure 2.4, $\lambda_0' + a\Delta_L$ will be greater than $\underline{\lambda}_H$. Then, with the knowledge of the investment response from the domestic investors each foreign investor will find it optimal to shift their portfolio as well, independently of the decision of the other foreign investors. Thus, H' is the only remaining equilibrium.

I will return to this "dashed-line scenario" several times in this thesis, and the mechanisms will become more clear in the next section when we go on to discuss which equilibrium will be implemented.

2.5 Which equilibrium?

The expectations of the investors depend on the optimal strategy of the opposition as well as the anticipation about how the other investors will respond to the reform. If the reform is rejected, it will be implemented with probability λ. If the reform proposal is such that the optimal response for the opposition is to accept, the investors do not need to worry about the sustainability of the reform.

$$E(\tau) = \begin{cases} \tau_1, & \text{if } \tau_1 \leq \bar{\tau}(\lambda) \qquad\qquad (2.16\text{a}) \\ \lambda\tau_1, & \text{if } \tau_1 > \bar{\tau}(\lambda) \qquad\qquad (2.16\text{b}) \end{cases}$$
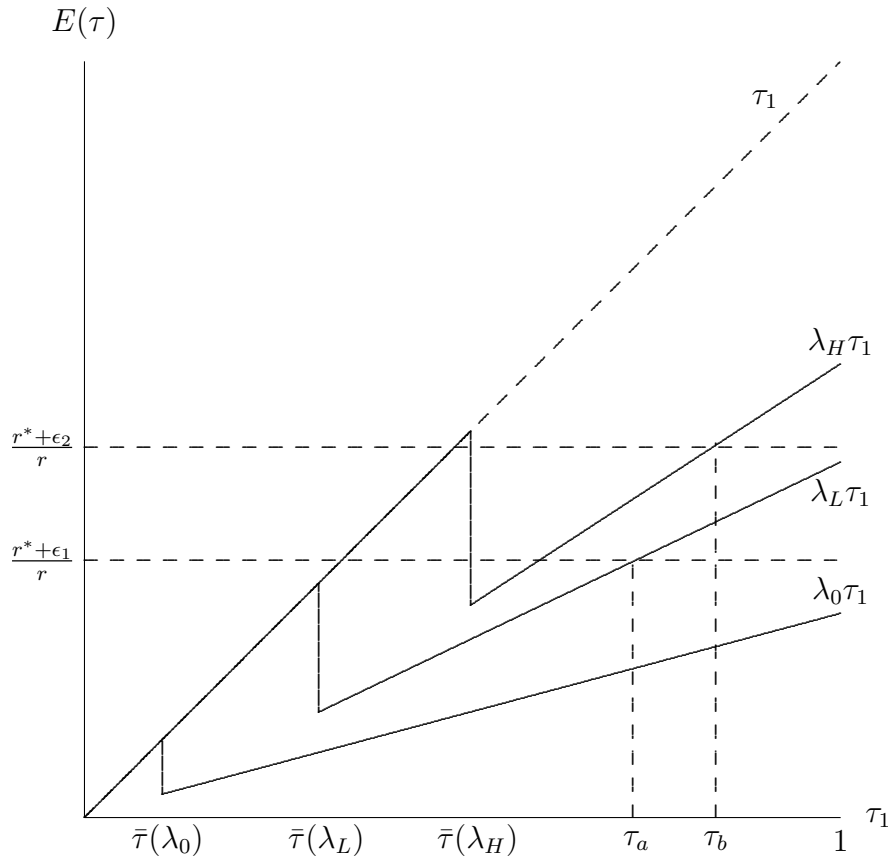

Figure 2.5: Expected value of τ and investment response without IMF

Figure 2.5 shows how the investment response affects the expected level of reform. The three kinked lines represent $E(\tau)$ for different outcomes of the investment decision. As we saw earlier, a positive investment response will increase the probability that the reform will be sustained in the event that the reform is rejected by the opposition. In addition, the increased support for the reform will make the opposition accept higher levels of reform. Thus, a higher λ will shift the highest point of compromise to the right and increase the slope of $E(\tau)$ in the area where of rejection.

A $\tau_1 \geq \tau_b$ will create the three locally stable equilibria we analyzed in section 2.4. The domestic investors find it optimal to invest only if they believe that the other domestic investors will. Likewise, the foreign investors will invest only if they believe that both the domestic investors and the other foreign investors will do so.

With a $\tau_a \leq \tau_1 < \tau_b$ the reform will not be sufficient to attract foreign investment. This corresponds to a rightward shift in the investment response function in figure 2.4 and there will be only two locally stable equilibria left; λ_0 and L.

Setting the level of reform lower than τ_a there will be only one equilibrium and it will be characterized by no investment. Looking at the figure it might be tempting to say that there could exist a $\tau_1 = \bar{\tau}(\lambda_H)$ that would generate a high investment response. Here, the small size of the reform could be compensated by being implemented with certainty if the investment response is high as it will be accepted by the opposition. However, as we are dealing with heterogenous investors, in order to get a high investment response we need both groups of investors to find it optimal to invest if they have confidence in the aggregate investment response. Here, it is clear that the domestic investors would never contemplate shifting their portfolio towards the domestic project as $\lambda_L \bar{\tau}(\lambda_H) < \frac{r^* + \epsilon_1}{r}$. Thus, $(\bar{\tau}(\lambda_H), \Delta_H)$ cannot be an equilibrium.

2.5.1 Game between the investors

When there are multiple equilibria, the equilibrium that will be implemented will be determined by the outcome of a game between the investors. This game is

similar to the well known "stag hunt"-game introduced by Rousseau [1]. This game illustrates the coordination problems between hunters who can either hunt rabbit quite successfully on their own, or they can hunt a much more filling stag together. However, in hunting the stag it may be individually rational for one hunter to shoot a rabbit if they should come across one, effectively scaring off any nearby stags. Then, the other hunter must go home hungry. The lesson from this game is that it would be better for both hunters to take down a stag collectively than to hunt rabbits by themselves, but it takes a great deal of trust between them to abstain from the temptation of dropping out of the cooperation to secure a quick meal.

In much the same way as the "stag hunt", the game played between the investors is an assurance game where the foreign asset is the rabbit and the domestic investment the stag. Although the assumption of many investors still stand, it can be illustrated by the following game with two domestic investors.

<div align="center">

A

		$\alpha_A = 0$	$\alpha_A = 1$
B	$\alpha_B = 0$	r^* $\qquad\qquad r^*$	$r\tau_1\lambda_0 - \epsilon_1$ $\qquad\qquad r^*$
	$\alpha_B = 1$	r^* $\qquad\qquad r\tau_1\lambda_0 - \epsilon_1$	$r\tau_1(\lambda_0 + a\Delta_L) - \epsilon_1$ $\qquad\qquad r\tau_1(\lambda_0 + a\Delta_L) - \epsilon_1$

</div>

Table 2.1: Assurance game between domestic investors

In this game the domestic investors choose between having a portfolio weight, α, on the domestic asset equal to either zero or one. Setting $\alpha = 0$ means investing in the risk free foreign asset and will earn a return of r^*. Setting $\alpha = 1$ means investing domestically and the payoff will depend on the aggregate investment response. In this game between only two investors, if only one of them choose to invest domestically the investment response will not be sufficient to have any impact on the probability that the reform will be sustained. Thus, the expected net return will be equal to $r\tau_1\lambda_0 - \epsilon_1$ per unit of wealth. However, when both investors invest domestically the probability that the reform will survive becomes

[1] see for instance Skyrms (2003) for a thorough discussion.

$\lambda_0 + a\Delta_L$.

With the parameter values used to draw figure 2.5, we see that there exists no level of reform that will make $r\tau_1\lambda_0 - \epsilon_1$ larger than or equal to r^*. If $\tau_1 \geq \tau_a$ in figure 2.5 the expected payoff from choosing to invest domestically will be greater than or equal to the payoff from investing in the foreign asset, provided that the other domestic investors also invests domestically. Thus, there will be two Nash equilibra along the diagonal: $(0,0)$ and $(1,1)$, with $(1,1)$ as the pareto optimal Nash equilibrium.

It is not clear a priori which of these Nash equilibria will be the outcome of the game. Even though the expected payoff in the $(1,1)$ equilibrium exceeds the return on the foreign asset, it may not be sufficient to compensate for the risk of being a lonesome investor. In this case, there would have to be a great amount of "trust" between the investors in order to coordinate on the $(1,1)$ equilibrium. Thus, assuming that all the investors are not lifelong friends, a level of reform only slightly above τ_a would likely be insuffient to reach an equilibrium with a positive investment response. A higher τ_1 will increase the expected payoff in the cooperative equilibrium $(1,1)$ and the expected payoff for the lonesome investor. Thus a sufficiently high τ_1 could tempt the investors to reach the cooperative equilibrium.

Furthermore, if the reader can be bothered to have a second glance at figure 2.4, it is clear that with the dashed line from λ_0', the equilibrium with no investment response will disappear because λ_0' is sufficiently high to make $(1,1)$ the only Nash equilibrium in table 2.1. This will hold for all $\lambda_0 > \underline{\lambda}_L$, for a given level of reform. I did not include the "dashed-line scenario" in figure 2.5 as it is more than sufficiently messy as it is. However, this would correspond to shifting all the lines upward and increase the slope in the rejection area, so that for some value of τ_1, $\lambda_0\tau_1 > \frac{r^*+\epsilon_1}{r}$.

A similar game is played between the investors with higher entry costs. In this game, the optimal strategy for the investors depends on the outcome of the game between the domestic investors. Let's call the aggregate investment response from the domestic investors Δ_D. As we know from the game between the domestic investors, Δ_D can be either Δ_L or Δ_0. In order for a foreign investor to find it optimal to invest domestically he needs to have a high confidence in both the

investment response from the domestic investors and the other foreign investors.

Looking at figure 2.5 it is clear that if the foreign investors believe that the domestic investors will reach the non-cooperative equilibrium $(0,0)$ in table 2.1, $(0,0)$ will be the only Nash equilibrium in this game. Anticipating that the domestic investors will not invest, the percieved sustainability of the reform will be too low for the foreign investors to consider shifting their portfolio towards the domestic asset.

<div align="center">A</div>

	$\alpha_A = 0$	$\alpha_A = 1$
$\alpha_B = 0$	r^* r^*	$r\tau_1(\lambda_0 + a\Delta_D) - \epsilon_2$ r^*
$\alpha_B = 1$	r^* $r\tau_1(\lambda_0 + a\Delta_D) - \epsilon_2$	$r\tau_1(\lambda_0 + a(\Delta_D + \Delta_F)) - \epsilon_2$ $r\tau_1(\lambda_0 + a(\Delta_D + \Delta_F)) - \epsilon_2$

B

Table 2.2: Assurance game between foreign investors

A larger τ_1 will increase the foreign investors confidence in the investment response from the domestic investors. Furthermore, by increasing the expected payoff for a lonesome foreign investor and the expected payoff in the cooperative equilibrium, a higher level of reform will make it more tempting for the foreign investors to set $\alpha = 1$. It is clear that a slight change in τ_1 can have major consequenses for the sustainability of the reform.

Returning to the famous dashed-line scenario for a moment, if we are to take the graphics in figure 2.4 seriously, λ_0' is constructed so that $\lambda_0' + a\Delta_L \geq \underline{\lambda}_H$. This implies that the $\lambda_L\tau_1$ line in figure 2.5 shifts upward such that for some values of τ_1, $\lambda_L\tau_1 \geq \frac{r^* + \epsilon_2}{r}$. Then the expected level of reform is sufficient to make it optimal for each foreign investors to invest in the domestic project no matter what the other foreign investors do. Thus, in the dashed-line scenario there will only be one equilibrium, and this equilibrium is characterized by a high investment response and a high probability of the reform being sustained.

2.5.2 Ensuring high investment response

Provided that the government is not too weak, there will be a level of reform that is able to ensure a high investment response. By implementing a level of reform such that

$$r\tau_1\lambda_0 - \epsilon_1 \geq r^* \Rightarrow \tau_1 \geq \frac{r^* + \epsilon_1}{r\lambda_0} \qquad (2.17)$$

If (2.17) is satisfied, $\alpha = 1$ will be the dominant strategy for all domestic investors. Then, the cooperative equilibrium will be the only Nash equilibrium in the assurance game between the domestic investors. This level of reform will be sufficient to ensure an investment response of $\Delta_D = \Delta_L$. In order to ensure a high investment response, the level of reform must be such that $(1,1)$ is the only equilibrium in the game between the foreign investors as well. This requires a τ_1 such that $\Delta_D = \Delta_L$ and $r\tau_1\lambda_L - \epsilon_2 \geq r^*$. Thus, the level of reform necessary to ensure a high investment response is

$$\tau_1 \geq \max\{\frac{r^* + \epsilon_1}{r\lambda_0}, \frac{r^* + \epsilon_2}{r\lambda_L}\} \qquad (2.18)$$

From this we also see that for a government to be able to ensure a positive investment response with certainty it needs to have sufficient support prior to the implementation of the reform. With a $\lambda_0 < \lambda^{min} = \frac{r^* + \epsilon_1}{r}$, it will not be possible to generate any investment response with certainty even with $\tau_1 = 1$. The case illustrated in figure 2.5 is an example of this.

To simplify the analysis in the following section I will assume that the investors are not able to coordinate on the cooperative equilibrium unless domestic investment is the dominant strategy. That is, any level of reform lower than τ^L will not generate investment and will be sustained with probability λ_0.

2.6 Optimal level of reform

Now that we have established the optimal response of the opposition and the investors, we can use the logic of backward induction to find the optimal level of reform for the government.

21

The government will choose the value of τ_1 that maximizes the expected payoff given the optimal strategy of the opposition and the expected investment response. To find what level of reform the government will implement we can rely on our economic intuition to rank the different alternatives. As τ is continuously defined over the interval $(0, 1)$, there is an infite number of alternatives, but luckily very few of them are relevant. In the following I will identify some candidates for τ_1 that in different circumstances might be the optimal choice, before I go on to discuss the ranking of these candidates more thoroughly.

The payoff structure for the government will provide a good starting point in the investigation of the optimal level of reform. To quickly repeat the lessons from section 2.2.1, by implementing a level of reform τ_1 the government will obtain the utility

$$\pi_G = \mu(1 - |\tau^* - \tau_1|) \tag{2.19}$$

if the reform is accepted by the opposition. By implementing a reform that will be rejected by the opposition the expected utility becomes

$$E(\pi_G(\tau_1); \lambda) = \lambda\mu(1 - |\tau^* - \tau_1|) + (1 - \lambda)(1 - |\tau^* - \tau_0|) \tag{2.20}$$

Looking at equations (2.20) and (2.19), we can immediately discard all levels of reform that have the same probability of being sustained as the unconstrained optimal level of reform τ^*. Thus, if τ^* can be reached through a compromise with the opposition, the unconstrained optimum will dominate all other levels of reform that will be accepted by the opposition. The same logic holds when τ^* is high enough to generate investment. It will dominate all other levels of reform that will generate the same investment response and thus have the same probability of being sustained.

Furthermore, if $\tau^* > \bar{\tau}_0$ so that it will be rejected by the opposition and not able to ensure a high investment response, the probability that a level of reform equal to τ^* may be susceptible to vicious and virtuous circles. However, as we saw in section 2.5, unless the unconstrained optimal level of reform is quite high the circles are likely to be of the vicious kind and the reform will be sustained with probability λ_0. Then, it will dominate all other levels of reform that will be

sustained with probability λ_0. From this we can conclude that the unconstrained optimum is an obvious candidate for the subgame perfect Nash equilibrium level of reform.

When τ^* is unacceptable to the opposition, the government could find it optimal to sacrifice parts of the reform in order to have it sustained with certainty. Then, the highest level of reform that can be reached through a compromise, $\bar{\tau}_0$ is another candidate for the level of reform that solves the game[2]. In terms of optimal levels of reform, whenever τ^* cannot be implemented through a compromise, $\bar{\tau}_0$ will be the corner solution to

$$\max_{\tau_1} \quad \mu(1 - |\tau^* - \tau_1|)$$
$$\text{subject to} \quad \tau \le \frac{\lambda_0}{1 - \lambda_0} c_p - (\gamma - 1) \tag{2.21}$$

and will of course dominate all other levels of reform that can be reached through a compromise.

If τ^* is too small to generate any investment we also have to consider whether the government is willing to go beyond its unconstrained optimum in order generate moderate and high investment responses and thereby increase the sustainability of the reform. Lets call the lowest level of reform that will generate a moderate investment response τ^L. In section 2.5.2 we found this level of reform to be

$$\tau^L = \frac{r^* + \epsilon_1}{r \lambda_0} \tag{2.22}$$

Similarily, we can call the lowest level of reform that is able to generate a high investment response τ^H, where

$$\tau^H = \max\{\frac{r^* + \epsilon_1}{r \lambda_0}, \frac{r^* + \epsilon_2}{r \lambda_L}\} \tag{2.23}$$

Whenever τ^* is too small to generate a high investment response, τ^H will be the corner solution to the following maximization problem:

---

[2]A stronger government might be able to get $\bar{\tau}(\lambda_L) > \frac{r^* + \epsilon_1}{r}$, but as the downside risk for lonely investors is very large compared to the premium, the government would have to be very strong in order to get the domestic investors to coordinate on the cooperative Nash equilibrium. So for now, I will stick to the discussion $\bar{\tau}_0$ as the highest level of reform that can be reached through a compromise.

$$\max_{\tau_1} \quad \lambda_H \mu (1 - |\tau^* - \tau_1|) + (1 - \lambda_H)(1 - |\tau^* - \tau_0|)$$

$$\text{subject to} \quad \lambda_L \tau_1 \geq \frac{r^* + \epsilon_2}{r} \tag{2.24}$$

$$\text{and} \quad \lambda_0 \tau_1 \geq \frac{r^* + \epsilon_1}{r}$$

τ^L is similarily defined. When τ^* is not sufficient to generate investment, τ^L will dominate all other levels of reform generating a moderate investment response and τ^H will dominate all other levels of reform that is able to generate high investment.

So that we won't have to worry about so many candidates, I will assume that the lowest level of reform necessary to generate a high investment response will always dominate the lowest level necessary to generate a moderate investment response. Formally, this requires that

$$E(\pi_G(\tau^H); \lambda_H) > E(\pi_G(\tau^L); \lambda_L) \tag{2.25}$$

which by some simple manipulation of the expressions and inserting the expressions for λ_H and λ_L from (2.12), can be written

$$(\mu - 1 + \tau^*)a(\Delta_H - \Delta_L) > \mu(\lambda_H |\tau^* - \tau^H| - \lambda_L |\tau^* - \tau^L|) \tag{2.26}$$

The left hand side of (2.26) shows the benefit from a higher investment response on the probability of a reform reversal and the government keeping its power rent $\mu - 1$. The right hand side represents the disutility from having a level of reform further away from the unconstrained optimum τ^*. We see that this inequality is more likely to hold when the investment response is successful in building a constituency for the continuance of the reform (high a). Of course, it may be the case that the government is only able to generate a moderate investment response. Then, we would have to consider τ^L rather than τ^H.

Now that we have narrowed our scope from an infinite number of alternatives to only three, we can move on to discuss the ranking between these three candidates more closely.

2.6.1   Ideologies and practicalities

We already know that the unconstrained optimal level of reform will dominate all other levels of reform that have the same probability of being sustained. Now we need to check the willingness of the government to sacrifice some of the reform in order to have it sustained with certainty, and the willingness to go beyond the τ^* in order to generate investment. In the following analysis I will assume that the government is biased towards its unconstrained optimum, so that in the case of indifference, τ^* will be chosen. If we allow ourselves to be a bit crude, we might say that the decision on which level of reform to implement represents a tradeoff between practicalities and ideologies. The risk of losing power is surely a rather impractical aspect of attempting to reform. This risk can be reduced, and even removed completely, by sacrificing on the content of the reform.

First, suppose $\bar{\tau}_0 < \tau^* < \tau^H$. Then, the unconstrained optimum will not be sufficient to overcome the possibility of vicious circles. When the government anticipates that the investors will not be able to coordinate in the $(1,1)$ equilibrium, the unconstrained optimum will be preferred to the compromising level of reform if

$$E(\pi_G(\tau^*); \lambda_0) \geq \pi_G(\bar{\tau}_0) \tag{2.27}$$

The expression in (2.27) does not provide us with much insight, so we should insert for the payoff functions and rearrange the terms in order to get

$$\mu|\tau^* - \bar{\tau}_0| \geq (1-\lambda_0)(\mu - 1 + \tau^*) \tag{2.28}$$

Here, in keeping with the crudeness of our interpretations, the right hand side can be regarded as the "practical" aspect of choosing $\bar{\tau}_0$. By reducing the risk of losing the power rent and ending up with reform reversal from $1 - \lambda_0$ to zero, reaching a compromise become a more desirable alternative. The left hand side shows the perhaps more "ideological" disutility from diluting the reform program in order to reach a compromise with the opposition. If the reduced utility from having a too low level of reform is greater than or equal to the benefits of reduced risk by implementing $\bar{\tau}_0$, the unconstrained optimum will be preferable to compromise.

To see the how the strenght of the government affects this tradeoff we can take the derivative with respect to λ_0 on both sides, yielding:

$$-\mu \frac{(\tau^* - \bar{\tau}_0)}{|\tau^* - \bar{\tau}_0|} \frac{\partial \bar{\tau}_0}{\partial \lambda_0} \geq -(\mu - 1 + \tau^*)$$
$$\mu - 1 + \tau^* \geq \mu \frac{c_p}{(1 - \lambda_0)^2} \tag{2.29}$$

(2.29) shows that λ_0 will have two effects. First, by reducing the risk of a policy reversal and loss of power rent associated with implementation of τ^*, a higher λ_0 will make τ^* a more desirable alternative. Second, a stronger government will be able to reach a compromise with a more substantial reform, and thus have to sacrifice less of the reform in order to reach a compromise with the opposition. The net effect depends on the size of the potential political costs for the opposition from rejecting a reform proposal. Unless these costs are quite low the latter effect will dominate the former.

The above analysis suggests that a strong government is more likely to reach a compromise with the opposition than a weak one. However, it could also be the case that a government is so weak that the chances of τ^* being sustained becomes sufficiently small, so that the government would rather dilute the reform or even to abandon it altogether in order to stay in power.

Furthermore, the unconstrained optimum will be preferred to any level of reform capable of generating a high investment response if

$$E(\pi_G(\tau^*); \lambda_0) \geq E(\pi_G(\tau^H); \lambda_H)$$
$$\lambda_H \mu |\tau^* - \tau^H| \geq a\Delta_H(\mu - 1 + \tau^*) \tag{2.30}$$

which, by inserting for $\lambda_H = \lambda_0 + a\Delta_H$ and rearranging the terms become

$$\lambda_H \mu |\tau^* - \tau^H| \geq a\Delta_H(\mu - 1 + \tau^*) \tag{2.31}$$

The inequality in (2.31) shows the ranking between a level of reform generating a high investment response and the unconstrained optimum. If this is satisfied, τ^* will yield a higher expected utility than τ^H and thus be the preferable choice. We can see that the additional support for the continuance of the reform can make it optimal for the government to go beyond the unconstrained optimum in order

to reduce the risk of losing the power rent and ending up with a policy reversal. Also here, the strenght of the government plays an important role. A higher λ_0 will only affect the left hand side of this inequality, denoting the reduced utility from having a level of reform beyond τ^*.

With a higher λ_0, the expected value of the gap between τ^* and τ^H will increase for a given τ^H, making a high level of reform less desirable. On the other hand, a stronger government will be able to generate a high investment response with a less ambitious reform, reducing this gap. By taking the derivative with respect to λ_0 we can show that the latter effect dominates the former:

$$
\begin{aligned}
\frac{\partial \lambda_H \mu |\tau^* - \tau^H|}{\partial \lambda_0} &= \mu |\tau^* - \tau^H| + \lambda_H \mu \frac{|\tau^* - \tau^H|}{(\tau^* - \tau^H)} \frac{r(r^* + \epsilon_2)}{(r\lambda_L)^2} \\
&= \mu \tau^H \left(1 - \frac{\lambda_H}{\lambda_L} \right) - \mu \tau^* < 0
\end{aligned}
\tag{2.32}
$$

To get to the last expression in (2.32) I have used that $\tau^H = \frac{r^* + \epsilon_2}{r\lambda_L}$ from (2.23). Thus, a stronger government is more likely than a government with less support to go beyond its unconstrained optimal level of reform in order to generate investment.

Now we have seen how the expected utility from implementing τ^* compare to the expected utility from implementing any other level of reform. However, for completeness there is one additional scenario we need to consider. Namely when $\tau^* \geq \tau^H$. It has already been established that τ^* will dominate any other level of reform generating a high investment response. But it could still be the case that the government would find it optimal to reach a compromise with the opposition rather than implementing the unconstrained optimum. Thus we need to check whether

$$
E(\pi_G(\tau^*); \lambda_H) \geq \pi_G(\bar{\tau}_0)
\tag{2.33}
$$

which can be written as

$$
\mu |\tau^* - \bar{\tau}_0| \geq (1 - \lambda_H)(\mu - 1 + \tau^*)
\tag{2.34}
$$

This is obviously a looser condition than the one we saw in equation (2.28) and

is likely to be satisfied. In order for this to be a relevant case, τ^* needs to be quite high, so the policy gap between the unconstrained optimum and the compromising level of reform is likely to be large. However, a high τ^* will also increase the disutility from a potential policy reversal associated with implementation of a reform that will be rejected by the opposition. The net effect though, seems to be in favour of implementing the unconstrained optimum, so that (2.34) is most likely satisfied.

2.6.2 Playing it safe or going for glory

If neither (2.28) nor (2.31) are satisifed and the unconstrained optimal level of reform is unable to generate investment, the choice will be between reaching a compromise with the opposition or implementing a more ambitious reform capable of generating a high investment response:

$$\pi_G(\bar{\tau}_0) \geq E(\pi_G(\tau^H); \lambda_H) \tag{2.35}$$

Inserting from the payoff functions and rearranging the terms gives us [3]

$$(1 - \lambda_H)(\mu - 1 + \tau^*) \geq \mu(|\tau^* - \bar{\tau}_0| - \lambda_H|\tau^* - \tau^H|) \tag{2.36}$$

If (2.36) is satisfied, a compromise will yield a greater expected utility than τ^H. The left hand side, as usual, shows how the risk associated with implementing a reform that will be rejected by the opposition makes a compromise more desirable. The right hand side shows basically the same as before. When the constrained optimum is not the same as the unconstrained optimum, the government will want to implement a reform with as small an expected policy gap as possible. Thus, the expected gap between τ^H and τ^* must be smaller than that from implementing the compromising reform in order to compensate for the expected loss of power rent.

In this case it is more difficult to see how the strength of the government will affect the outcome. As we have seen before, a stronger government is able

---

[3]In line with the assumtpion of a bias towards the unconstrained optimum, the use of the greater-than-or-equal-to sign implicitly assumes that $\bar{\tau}_0$ is closer to τ^* than τ^H is. However, this could easily be the other way around and should not be thought of as a general assumption.

to reach a more desirable compromise with the opposition, but also to convince the investors with less ambitious levels of reform. Furthermore, a higher λ_0 will reduce the risk of having a policy reversal and lose the power rent associated with implementing τ^H. Which of these effects will dominate is unclear and depends on the relative reductions in the policy gap for $\bar{\tau}_0$ and τ^H from having a larger λ_0.

A greater impact of the investment response on the probability that the reform will be sustained, larger a, will have the same effect as a higher λ_0 except that it will not affect the bargaining power of the government vis-à-vis the opposition. Thus, when a is large, the executive will be more inclined to implement a more ambitious reform program.

I mentioned briefly that the government may only be able to generate investment from the domestic investors. Then, we would have to insert τ^L for τ^H and λ_L for λ_H. Obviously, this will make both the compromising level of reform and the unconstrained optimum more attractive, compared to when it was possible to reach high investment.

2.7   A taxonomy

Based on the choice of level of reform to implement we can seperate between three "types" of reformers, creating a simple taxonomy that will be useful when we explore how the IMF may alter the outcomes in the next chapter.

A τ^*-country is likely to be characterized by a rather weak government with a moderate to high unconstrained optimal level of reform. When the government is too weak to generate any investment response with the reform, it will be a choice between reaching a compromise with the opposition and attempting to implement τ^* even in the absence of political support. As a compromise would dilute the reform package to a minimum, the government choose to implement their unconstrained optimal level of reform at the risk of losing political power. Consequently, the reforms implemented by the τ^*-countries will have a small probability of being sustained. To make things more exciting, I will refer to the τ^*-countries as the "brave idealists" in the next chapter. The case of Brazil can serve as a real-world example of a τ^*-country, where the government made several failed attempts at implementing reforms. Brazil had a weak factional state throughout the 1980's

(Krueger (1993, p. 116)). By the end of 1991, Brazil had had eleven finance ministers and six major reform programs announced since the first plan in 1986.

A country where reforms are implemented through reaching a compromise with the opposition is likely to be characterized by a stronger government. A stronger government is also more likely to be able to generate investment response as the sustainability of the reform is more credible when the government is strong. Thus, the government in a $\bar{\tau}$-country is likely to have less ambitious reform plans. Although, if the government is sufficiently strong the reforms that can be reached through a compromise can be quite substantial as well. Indeed, one could argue that Pinochet's Chile is a case of a $\bar{\tau}$-country and was able to implement massive reforms, successfully supressing any opposition. The other extreme of the $\bar{\tau}$-countries are the ones where the opposition is so strong that the reform program is almost abandoned altogether. This might have been the case in Ecuador for instance, which was a highly divided country and the state had traditionally been weak. In Bates and Krueger (1993, p. 19), the Ecuadorian reform efforts is described as "muddling through", where successive administrations were able to undertake some reforms but unable to carry them out without considerable dilution as opposition to the measures mounted. In the next chapter, the discussion on the compromisers will be focused on the case where the government choose $\bar{\tau}_0$ because it is sufficiently strong to reach a satisfying compromise.

Finally, we have the τ^H-country. We can call the government of these countries the "true reformers". Likely to share the characteristics of a compromising country with a strong political leadership, the true reformers will have a more reform-minded government. In this case, it will not be necessary to go very far beyond the unconstrained optimum in order to generate high investment, making the "ideological" costs of doing so are smaller than for the compromising country with a lower τ^*. Another way a true reformer can be thought to differ from the compromisers is that the support for the government will be more dependent on the outcome of the reform, higher a, so that the increased support from implementing a reform that generates a high investment response reduces the risk from going beyond the limits of what the opposition will accept.

Now that we have seen how a reformist government might behave it is time to see how things might change when we bring in some international financial insti-

tution to assist the government in its struggle to reform. The analysis that follows could be applied to any donor or structural adjustment lending institution using conditionality to mitigate the problem of moral hazard in its lending. However, as the IMF has been my primary interest I will focus the discussion on the Fund.

3 Adding the Fun(d) to reform

In chapter 2 we had a lot of fun in trying to characterize the subgame perfect Nash equilibrium in the absence of an IMF agreement. In this chapter we will see how the presence of the Fund may change the outcomes. The basic setup is the same as before, but the setting is now a country having negotiated a deal with the IMF about the level of reform, τ^F, and is once again deciding on the level of reform to implement. However, as I spent so much ink on characterizing the outcome of the game in the previous chapter, I will now take a more indirect approach. In the following analysis I will use the results from chapter 2 as a reference, and investigate the influence of IMF conditionality on the reform decision of the government. I will also discuss briefly the possible influence of the IMF's "seal of approval" on the ability of a reform to generate investment. Then, after invstigating how tying the reform to an IMF agreement can influence the outcomes, we will have a brief look at which type of countries that are most likely to turn to the Fund in the first place.

3.1 Conditionality and costs of non-compliance

In this section I will identify and discuss the channels through which the presence of the Fund can be thought to change the outcomes. As noted in the introduction, the conditionality in IMF programs has been identified as an important channel of IMF influence in the literature. See for instance Joyce (2004).

The discussion of IMF conditionality will be linked to figure 3.1 which is the same as we have seen before, with the inclusion of three vertical dashed lines. As will become clear in the next section, these lines correspond to the new levels of

reform that can be reached through a compromise with the opposition when the Fund is involved.
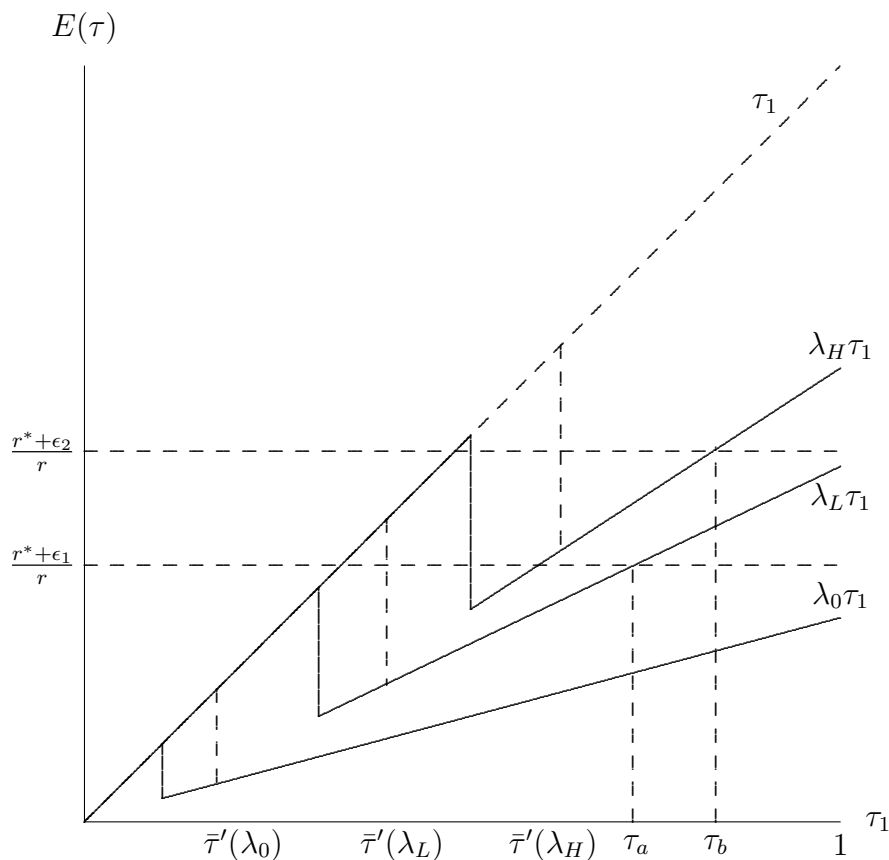
$E(\tau)$

Figure 3.1: Expected value of τ and investment response with IMF

In turning to the IMF for assistance a country exposes itself to the conditionality set by the IMF. Failing to meet these conditions is assumed to come at a cost. These costs could come in many forms, the most immediate one being denied access to the remaining credit set aside for the agreement. Vreeland (2003, p. 62) discuss some other costs that could be caused by noncompliance. In addition to resitricted access to the IMF loan it could become more difficult to obtain a new agreement in the future, though empirically this do not seem to be a threat to be taken seriously as non-implementation is rarely punished effectively (see for instance Killick (1998)). A more indirect cost of noncompliance, perhaps mostly relevant for developing countries, is through informal creditor groups such as the

Paris Club that reschedules country debt and almost always demands that the country is in good standings with the IMF.

Another sanction for cancelling an IMF agreement may come through foreign investors. Edwards (2005) finds that "Suspending an IMF program not only causes portfolio outflows, but the magnitude of these outflows is greater than the counterfactual value of the same state not being under the Fund program." This response by the investors should however not be confused with the investment response generated by the reform in this model. The investment response modelled here is a direct consequence of the change in τ and cannot be negative, while the potential capital to flight included in the cancellation costs are better to be regarded as coming from the cancellation of the program rather than τ itself, for instance by creating uncertainty about other policies as well.

I will assume the costs of noncompliance to be linearly increasing in the gap between the level of reform set in the loan conditions and the reform being implemented. As long as the conditions set by the IMF are met, there will be no costs from implementing further reform. Thus,

$$C = \beta \max\{\tau^F - \tau_1, 0\} \tag{3.1}$$

where β can be interperated as the unit cost of noncompliance. With the inclusion of cancellation costs, the expected payoff for the government when implementing a lower level of reform than τ^F become:

$$
\begin{aligned}
E(\pi'_G(\tau_1); \lambda) =& \lambda(\mu(1 - |\tau^* - \tau_1|) - \beta(\tau^F - \tau_1)) \\
& + (1 - \lambda)(1 - |\tau^* - \tau_0| - \beta(\tau^F - \tau_0) \\
=& \lambda\mu((1 - |\tau^* - \tau_1|) + (1 - \lambda)(1 - \tau^*) - \beta(\tau^F - \lambda\tau_1)
\end{aligned}
\tag{3.2}
$$

With probability λ the proposed level of reform, τ_1 will be sustained and the costs for noncompliance $\beta(\tau^F - \tau_1)$ will be incurred. With probability $1 - \lambda$ the executive will lose power and the reform will be reversed. In the case of policy reversal, cancellation costs $\beta\tau^F$ will be incurred.

3.1.1 Optimal response for the opposition in the presence of IMF conditionality

Similarily, for the opposition the payoff functions will become

$$
\begin{aligned}
\pi'_O(A;\tau_1) &= 1 - |\tau_0 - \tau_1| - \beta(\tau^F - \tau_1) \\
&= 1 - \tau_1 - \beta(\tau^F - \tau_1)
\end{aligned}
\tag{3.3}
$$

(3.3) shows the payoff for the opposition if he chooses to accept a proposal. If he rejects, the expected payoff becomes

$$
\begin{aligned}
E(\pi'_O(R;\tau_1);\lambda) &= \lambda(1 - |\tau_0 - \tau| - c_p - \beta(\tau^F - \tau_1)) \\
&\quad + (1-\lambda)\gamma(1 - |\tau_0 - \tau_0| - \beta(\tau^F - \tau_0)) \\
&= \lambda(1 - \tau_1 - c_p) + (1-\lambda)\gamma - \beta(\tau^F - \lambda\tau_1)
\end{aligned}
\tag{3.4}
$$

We see immediately that the presence of the IMF will affect the optimal response for the opposition. Now, the opposition will accept any proposal such that

$$
\pi'_O(A;\tau_1) \geq E(\pi'_O(R;\tau_1);\lambda)
\tag{3.5}
$$

By inserting for the payoff functions and rearranging the terms like we did in section 2.3 we get the following expressions for the optimal response of the opposition: Accept any level of reform such that

$$
\tau_1 \leq \frac{\lambda}{(1-\lambda)(1-\beta)}c_p - \frac{(\gamma-1)}{1-\beta} \equiv \bar{\tau}' = \frac{\bar{\tau}}{1-\beta}
\tag{3.6}
$$

These new compromsing levels of reform, which will be determined by the investment response, correspond to the dashed expected value of τ_1 in figure 3.1.

(3.6) shows that involving the IMF in the reform will strengthen the hand of the reformer in domestic politics. This result is similar to the assertion of Schelling (1980, p. 22) that "the power to bind an adversary may depend on the power to bind oneself". This strategy is of course only effective in as much as the opposition actually care about the costs of noncompliance. However, as the discussion at the beginning of this chapter revealed, a program interruption can have severe consequences for the whole economy. Therefore, I argue, the assumption that the

opposition internalizes these costs is hardly a controversial one.

The cancellation costs will have a dual effect. By strengthening the hand of the reformer the executive will be able to reach a more favourable compromise with the opposition. At the same time, by punishing non-compliance it might become more costly to reach a compromise rather than a more ambitious reform. It is also worth noticing that the level increase in the reforms that can be reached through a compromise will be greater for stronger governments as

$$\bar{\tau}'_0 - \bar{\tau}_0 = \frac{\beta}{1 - \beta} \bar{\tau}_0(\lambda) \tag{3.7}$$

Conditionality can be expected to influence different types of reformers in different ways. Therefore, I will now return to the taxonomy that was presented in section 2.7 and discuss each type individually. But before I do this, we need to adress the possibility of new equilibria emerging from IMF conditionality.

3.1.2   Emergence of new equilibria

Taking another look at figure 3.1 we see that adding the Fund to reform might bring about new equilibria for levels of reform at- and slightly below $\bar{\tau}'(\lambda_L)$. These equilibria emerge because the cancellation costs improve the bargaining power of the government vis-à-vis the opposition. With a level of reform equal to $\bar{\tau}'(\lambda_L)$, there will be two Nash equilibria in the game between the domestic investors, like the cases we looked at in section 2.5. Given that the other domestic investors decides to invest domestically, it will be optimal for an individual investor to invest as well. However, if the investors anticipates that the aggregate investment response will be poor, it will be optimal to invest in the foreign asset.

Table 3.1 shows the assurance game between the investors for levels of reform that may generate investment from the domestic investors and not be rejected by the opposition. Formally, this requires that:

$$\frac{r^* + \epsilon_1}{r} \leq \tau_1 \leq \bar{\tau}'_L \tag{3.8}$$

However, looking at figure 3.1, it is clear that the expected return for a lonesome investor is substantially lower than the risk-free return on the foreign asset, making

36

		A	
		$\alpha_A = 0$	$\alpha_A = 1$
	$\alpha_B = 0$	r^* $\qquad r^*$	r^* $\qquad r\tau_1\lambda_0 - \epsilon_1$
B	$\alpha_B = 1$	$r\tau_1\lambda_0 - \epsilon_1$ $\qquad r^*$	$r\tau_1 - \epsilon_1$ $\qquad r\tau_1 - \epsilon_1$

Table 3.1: Assurance game between domestic investors with new equilibria

it improbable that the investors will be able to coordinate on the $(1,1)$ equilibrium. Thus, implementing a level of reform that satisfies (3.8) in the hope of generating investment in order for the reform to be accepted by the opposition comes at a high risk for the reformer that is illustrated in figure 3.1.

These new equilibria could be fierce contenders for the subgame perfect equilibrium level of reform, where it not for the difficulties of getting the investors to respond positively to these levels of reform. Although the emergence on new equilibria is a very interesting possibility, in the following, I will therefore neglect $\bar{\tau}'(\lambda_L)$ in the discussion of optimal levels of reform.

3.1.3 The brave idealist

To see how the cancellation costs can influence the outcomes we can compare the ranking of alternatives with and without them.

$$\pi'_G(\bar{\tau}'_0) - E(\pi'_G(\tau^*); \lambda_0) > \pi_G(\bar{\tau}_0) - E(\pi_G(\tau^*); \lambda_0) \tag{3.9}$$

If (3.9) is satisfied, the presence of the IMF will increase the attractiveness of reaching a compromise with the opposition relative to implementing τ^*. Assuming that the level of reform set in the IMF conditionality, τ^F, is larger than the unconstrained optimum and inserting for the payoff functions, (3.9) becomes

$$\mu(1 - |\tau^* - \bar{\tau}'_0|) - \beta(\tau^F - \bar{\tau}'_0) - \lambda_0(\mu - \beta(\tau^F - \tau^*) - (1 - \lambda_0)(1 - \tau^* - \beta(\tau^F))$$
$$> \mu(1 - |\tau^* - \bar{\tau}_0|) - \lambda_0\mu - \lambda_0(1 - \tau^*)$$

(3.10)

which after rearranging the terms and assuming that $\tau^* > \bar{\tau}'_0$, can be expressed as:

$$\mu(\bar{\tau}'_0 - \bar{\tau}_0) > \beta(\lambda_0\tau^* - \bar{\tau}'_0) \qquad (3.11)$$

In order for IMF conditionality to increase the incentives to implement τ^*, so that (3.11) is not satisfied, the expected value of this reform must be substantially larger than the new level of compromising reform. Looking at figure 3.1, we see that this will only be the case for very high levels of τ^*. Thus, some of the countries that would implement their unconstrained optimum in the absence of IMF will now contemplate reaching a compromise instead.

For the ranking between implementation of τ^* and τ^H, the cancellation costs will only have an effect through making it more costly to implement the reform with the lowest expected value. As the high investment level of reform is more likely to be sustained, the presence of an IMF agreement will increase the incentives for the government to go beyond its own unconstrained preferences in order to generate investment. However, the τ^*-country is assumed to be unable to generate investment response with its reforms, and IMF conditionality provides no mechanism to improve on this failure to convince the investors. This means that, when considering how costs of noncompliance will affect the incentives for the brave idealist, (3.11) is really the only relevant condition.

3.1.4 Compromisers and true reformers

We characterized the compromisers as a country with a strong government and a lower unconstrained optimum level of reform than the brave idealists. These features will make (3.11) more likely to hold for countries who were compromisers without the IMF, as they will experience a greater level increase in the compromising level of reform. Thus, for the compromisers, implementing their unconstrained

optimum becomes a less viable option then IMF is involved. Unless, of course, the increased bargaining power from the IMF conditionality enables the government to reach τ^* through a compromise.

Furthermore, for the true reformers, the costs of noncompliance will only make it more costly to implement their unconstrained optimum relative to the high investment level of reform. So we cannot expect IMF conditionality to turn neither a compromiser or a true reformer into a brave idealist.

As before, if $\bar{\tau}'_0 \succ \tau^*$ and $\tau^H \succ \tau^*$, the optimal level of reform will be to either reach a compromise with the opposition or to implement a reform that is able to generate a high investment response. The ranking between these alternatives will naturally also be affected by the presence of an IMF agreement. Now, compromising will be preferable to a reform that will yield high investment if:

$$\pi'_G(\bar{\tau}'_0) \geq E(\pi'_G(\tau^H); \lambda_H) \tag{3.12}$$

which is the same as

$$(1 - \lambda_H)(\mu - 1 + \tau^*) \geq \mu(|\tau^* - \bar{\tau}'_0| - \lambda_H|\tau^* - \tau^H|) + \beta(\lambda_H\tau^H - \bar{\tau}'_0) \tag{3.13}$$

We can reckognize most of the expressions in (3.13) from the comparison of τ^H and the compromising level of reform in the chapter 2. The only difference is the increased level of reform that can be reached through a compromise, and the increased cost of doing so rather than implementing a higher level of reform.

If we compare the ranking of reaching a compromise or implementing a reform that is able to generate a high investment response with and without the IMF, we see that the costs of noncompliance will necessarily have an ambiguous effect on the incentives to reform. This is shown in equation (3.15). If $\tau^F \geq \tau^H$, the presence of the IMF will make compromising with the opposition more desirable relative to implementing a high level of reform if:

$$\pi'_G(\bar{\tau}'_0) - E(\pi'_G(\tau^H); \lambda_H) > \pi_G(\bar{\tau}_0) - E(\pi_G(\tau^H); \lambda_H) \tag{3.14}$$

which by simply inserting for the expressions becomes

$$\mu(\bar{\tau}_0' - \bar{\tau}_0) > \beta(\lambda_H \tau^H - \bar{\tau}_0') \qquad (3.15)$$

The right hand side of this inequality shows the expected difference in costs of noncompliance by implementing a level of reform that is able to generate a high investment and reaching a compromise with the opposition. The left hand side shows the increased desirability of compromising at a higher level of reform than in the absence of the IMF. (3.15) shows that the presence of the conditionality can cause the ranking of these alternatives to change in either direction. However, the direction of this effect will depend on the strenght of the government. A strong government will have both a higher level increase in the compromising reform, making the left hand side bigger. Additionally, a strong government will be able to convince the investors to coordinate on the cooperative equilibrium with lower levels of reform, thereby having a lower τ^H than that of a weaker government. Thus, the costs of noncompliance with IMF conditionality will have a negative effect on the incentive to implement a high level of reform in the countries that are more likely to be able to implement such a reform in the first place. This distortion of the incentives may lead to some of the "marginal" true reformers, that is the true reformers who was on the verge of being a compromiser without the IMF, to become compromisers.

If we relax the constraint of $\tau^F > \tau^H$, and only assume that the conditionality set by the IMF exceeds the level of reform that can be reached through a compromisem, and use the general expression for the costs of non-compliance from equation (3.1), (3.15) becomes:

$$\mu(\bar{\tau}_0' - \bar{\tau}_0) > \beta\left(\lambda_H \tau^F - \lambda_H \max\{\tau^F - \tau^H, 0\} - \bar{\tau}_0'\right)$$
$$\mu(\bar{\tau}_0' - \bar{\tau}_0) > \beta\left(\lambda_H \min\{\tau^F, \tau^H\} - \bar{\tau}_0'\right) \qquad (3.16)$$

Here, we see that less conditionality will increase the incentives for the government to reach a compromise rather than implementing an investment generating reform, by making the former option less costly.

The simple analysis presented in this section reveals that:

- The countries reaching a compromise without the IMF will be likely to reach a compromise in the presence of an IMF agreement as well. The increased

leniency of the opposition makes the government able to reach a compromise at a higher level of reform. It may even enable them to reach their unconstrained optimum. If the government was able to reach the unconstrained optimum without the IMF, the presence of conditionality will not change the outcome. As long as $\mu > \beta$, the marginal costs of implementing a higher level of reform will be larger than the marginal reduction in costs of non-compliance.

- IMF conditionality will reduce the policy gap between the unconstrained optimum and the compromising level of reform while the gap between τ^H and τ^* will be unaffected, as conditionality will not alter the sustainability of a given level of reform beyond its influence on the domestic politics. Therefore, the true reformers will be more tempted to reach a compromise when the IMF is involved.

- IMF conditionality will make both the compromising equilibrium and the high investment equilibrium more desirable relative to the unconstrained optimum. Thus, the government of a former τ^*-country could be tempted to go either way when IMF conditionality is added to the equation. However, the presence of IMF conditionality will not make the government any more able to generate investment with the reform. Therefore, an ambitious reform program will still have a low probability of being sustained and the expected costs of non-compliance for such a reform will be quite high due to the high probability of a policy reversal. Thus, a government who selected τ^* without the IMF because there was no alternative yielding a positive investment response will be more inclined to reach a compromise with the opposition, implementing a highly diluted reform program when the IMF is involved.

- Lower conditionality in the IMF agreement will distort the incentives for the government in the direction of implementing a compromise rather than going for glory and implement a reform that will generate investment. Lower unit costs of noncompliance, β, will have the same effect for a given level of compromising reform. However, a lower β will also reduce the highest level of reform that will be accepted by the opposition.

The analysis above suggest that the outcomes are a result of calculations by the government, regarding whether or not implementation of conditions will be in their best interst. This is in line with the results from Killick (1998). Furthermore, Killick concludes that: "...in the general case, conditionality is not an effective means of improving economic policies in recipient countries". The analysis in this chapter goes even further and suggests that conditionality may actually be harmful for the incentives to reform. On the positive side, even though some of the true reformers might be tempted to become compromisers, the compromisers will be enabled by conditionality to implement more substantial reform. In this respect, IMF conditionality can be said to be reform enhancing. This result only holds, of course, when noncompliance is effectively punished in some way, either by IMF itself or by other creditors/investors. If not, conditionality will play no role at all.

3.2 Investor confidence

Another way that the IMF can influence the outcomes is through the confidence of the investors. In section 2.5 we saw that implementing a reform so that the expected return in the domestic return in the cooperative equilibrium is higher than the return of the foreign asset was not enough to ensure investment response. In order to convince the investors, the government would have to go further beyond its unconstrained optimum. We also learned that when the government is forced to go too far beyond their unconstrained optimum in order to generate investment, they will be more likely to go for a compromise with the opposition instead. The result being a diluted reform package.

IMF agreements have often been assumed to have a "catalytic" effect on investment where the "seal of approval" from the Fund is assumed to increase the credibility of the policy reform. Bird and Rowlands (2002) presents an empirical analysis of the catalysis which raises doubts about this assumption. In the model I have presented in this thesis there is no means by which IMF can be thought to increase the probability that a reform will be sustained as this is determined by the domestic politics. However, it could be worthwhile to entertain the idea that the presence of the IMF increases the condifence of the investors.

Suppose tying the reform program to an IMF agreement increases the confi-

dence in the aggregate investment response for each individual investor. In the discussion of multiple equilibria in section 2.4 it became clear that when the investors anticipate a high investment response it will become optimal for them to invest as well. Reducing the perceived risk of ending up as a lonesome investors will increase the probability of the investors coordinating on the Pareto optimal Nash equilibrium of domestic investment. Provided, of course, that the expected return on the domestic investment exceeds that of the risk-free foreign asset. In this way, reducing the risk of vicious circles undermining the sustainability of the reform, tying the reform to an IMF agreement could enable the countries who were not able to generate investment on their own to implement an investment generating reform as well. For the countries who were able to generate investment, the catalytic effect of an IMF agreement can be able to convince the investors with less substantial reforms.

If the "seal of approval" from the IMF makes the investors coordinate on the cooperative equilibrium for lower levels of reform, this channel of IMF influence will make a level of reform generating a high investment response a more viable option. This (hypothetical) channel of IMF influence can compensate for the detrimental effect of conditionality on the incentives for some of the true reformers, by reducing the policy gap between the unconstrained optimum and the investment generating level of reform. Furthermore, it can enable the brave idealists to generate investment and thus become a true reformer. It may even make some of the "marginal compromisers" consider implementing a higher level of reform.

This is not to say that increasing the confidence of the investors necessarily will be conducive to deeper reform programs. Remember, the governments who was ready to implement a reform that would yield a high investment response in the absence of IMF will now prefer to implement a less ambitious reform program if this is closer to the unconstrained optimum. However, this channel of IMF influence will increase the incentives to generate a high investment response for governments who would not do so without IMF assistance.

- For the compromisers, the lower level of reform necessary to induce a high investment response will make it more tempting to do so, by reducing the policy gap between the unconstrained optimum and the level of reform nec-

essary to generate investment. Furthermore, there may be lower expected costs of non-compliance associated with implementation of the high investment level of reform. Thus, some of the "marginal compromisers" may decide to implement a higher level of reform if the IMF provides a credible guarantee for the lonesome investors.

- For the brave idealists, tying the reform to an IMF agreement could make them overcome the reforms susceptibility to vicious circles. Then, it can become optimal to go beyond the unconstrained optimum and implement an investment generating reform with a higher chance of being sustained.

- The true reformers, who would implement a reform able to generate a high investment response without an IMF agreement will be able to implement a lower level of reform without losing support for its continuance. They will find it optimal to reduce the level of reform whenever $\tau^H > \tau^*$.

In this way, an IMF agreement can serve to increase the reform efforts for some of the compromisers and for the brave idealists. However, the true reformers will have incentives to dilute their reform program slightly and still be able to generate investment.

3.3 Which countries turn to the Fund?

Several authors have argued that governments turn to the IMF in order to push through unpopular reforms that they are not able to implement on their own, implying that conditionality is a motivation to bring in the Fund in itself. Przeworski and Vreeland (2000) finds evidence that governments turn to the IMF to shield themselves from the political costs of adjustment policies, and in the words of Putnam (1988): "International negotiations sometimes enable government leaders to do what they privately wish to do, but are powerless to do domestically."

Assuming that the government has perfect foresight at the time they sign the IMF agreement we can compare the expected utility with and without the Fund to see which countries are more likely to turn to the IMF in the first place. To

make the dicussion as neat as possible I will once again rely on the taxonomy from section 2.7.

We have already seen how conditionality can influence the incentives of the reformist government. Now we can use this to investigate how this feature of IMF assistance can determine whether or not the government will find it optimal to turn to the IMF in the first place.

3.3.1 The compromisers

For the compromiser, IMF conditionality will allow the government to implement a higher level of reform without the risk of losing power. In this way we can say that IMF conditionality is indeed conducive to more substantial reforms.

A compromising government will be better off with an IMF agreement if

$$\pi'_G(\bar{\tau}'_0) > \pi_G(\bar{\tau}_0) \tag{3.17}$$

By inserting the payoff functions and rearranging the terms, (3.17) can be expressed as:

$$\mu(|\tau^* - \bar{\tau}_0| - |\tau^* - \bar{\tau}'_0|) > \beta(\tau^F - \bar{\tau}'_0) \tag{3.18}$$

We can see that the decision of whether or not to turn to the Fund is a comparison of the costs of noncompliance and the ideological benefits from obtaining a level of reform closer to the unconstrained optimum. Thus, only the governments who will get a rather large increase in the compromising level of reform will find it optimal to turn to the Fund in the first place.

3.3.2 The brave idealists

IMF conditionality seems to be less fruitful in cases where the government would implement either the unconstrained optimum or a reform that is able to generate investment in the absence of the IMF. As conditionality itself is not able to influence the investment response it will in most cases make compromising with the opposition more tempting, possibly creating compromisers out of both true reformers and brave idealists.

For a brave idealist who will become a compromiser with the presence of IMF conditionality it will be optimal to turn to the Fund if:

$$\pi'_G(\bar{\tau}'_0) > E(\pi_G(\tau^*); \lambda_0) \tag{3.19}$$

which becomes

$$(1 - \lambda_0)(\mu - 1 + \tau^*) > \mu|\tau^* - \bar{\tau}'_0| + \beta(\tau^F - \bar{\tau}'_0) \tag{3.20}$$

Also in this case, the reduced risk of a policy reversal must be enough to compensate for the costs of noncompliance and the policy gap between the unconstrained optimum and the compromising level of reform.

For the brave idealists who are not tempted to become compromisers the presence of IMF conditionality will only serve to make it more costly to implement a reform that may fail. Thus, only the brave idealists who will become compromisers when the reform is tied to an IMF agreement will contemplate turning to the Fund.

3.3.3 The true reformers

We discussed earlier the possibility of conditionality creating compromisers out of true reformers. The governments who find it optimal to take advantage of the improved bargaining position brought about by the presence of an IMF agreement, will decide to turn to the Fund if

$$\pi'_G(\bar{\tau}'_0) > E(\pi_G(\tau^H); \lambda_H) \tag{3.21}$$

which by inserting the payoff functions and rearranging the terms can be expressed as:

$$(1 - \lambda_H)(\mu - 1 + \tau^*) + \mu(\lambda_H|\tau^* - \tau^H| - |\tau^* - \bar{\tau}'|) > \beta(\tau^F - \bar{\tau}') \tag{3.22}$$

The benefits from becoming a compromiser is of course to reduce the risk of losing the power rent and of ending up with a policy reversal from $1 - \lambda_H$ to zero,

and in some cases to reduce the expected policy gap. [1]

For the true reformers who stay true in the presence of an IMF agreement, there will be no incentive to turn to the Fund as this will only entail costs from not complying fully with the conditionality. As no true reformer who stays true will decide to turn to the IMF for assistance, only the true reformers who are willling to dilute the reform program in order to secure its office will find it optimal to sign an IMF agreement.

The analysis of this section implies, not surprisingly, that in the absence of other features of IMF agreements, only the reformers who are planning on taking advantage of the improved bargaining power caused by conditionality will turn to the Fund. Furthermore, less conditionality imposed by the IMF will make the governments more likely to turn to the Fund, as long as the conditionality is sufficient to increase the bargaining power vis-à-vis the opposition.

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[1]The second term in the left hand side of (3.22) can be either positive or negative.

4 Concluding remarks

The model presented in this thesis illustrates the link between the economic responses to a reform and the domestic politics. A key feature is that the same policies can have very different outcomes under different political circumstances, in regard to the ability of the reform to generate investment and the probability that the reform will be sustained. An important result is that the sustainability of a reform can be susceptible to virtuous and vicious circles depending on the expectations of the investors. Depending on the strength of the government, it may be possible to implement a reform that is immune to these circles by making domestic investment the dominant strategy for the investors.

In the decision on which level of reform to implement, the government takes account of the political feasibility of the reform and its ability to generate economic responses that will build a constituency in favour of the continuation of the reform. Using the logic of backward induction in sequential games, I have shown how the anticipation of the investors' and the political oppositions response to the reform determines the optimal level of reform for the government.

According to the level of reform that is implemented, I have identified three types of reformers. The compromisers, the true reformers and the brave idealists. By introducing IMF to the model we have seen how conditionality can influence the outcome of the reform process for these reformers. IMF conditionality is shown to play a dual role. By making it more costly to implement low levels of reform it also becomes more costly for the political opposition to reject a reform, thus strengthening the hand of the reformer in domestic politics.

The model implies that the influence of IMF conditionality on the outcome of the reform effort is highly dependent on the domestic political scene and the

preferences of the political leadership. When the government is strong and able to reach a satisfactory compromise with the opposition in the absence of international assistance, IMF conditionality will serve to strengthen the hand of the reformer and allow the government to pursue more substantial reforms without the risk of policy reversal. If the government is strong and willing to implement a reform that is sufficient to secure a high investment response, conditionality will reduce the incentives for the government to pursue an ambitious reform program as the compromising equilibrium becomes more attractive and turn the occasional true reformer into a compromiser. However, IMF conditionality will only influence the outcome if the government is more or less indifferent between the high reform and a compromise in the first place. For a weak government not able to implement a reform that is sufficiently credible to generate any investment response, IMF conditionality will not have much impact on the outcome. Conditionality in itself will not alter the investors assessment of the sustainability of reform beyond its infleunce on domestic politics, and will thus not enable the reform to generate investment. Also, the effect of conditionality on the domestic politics is proportional to the strength of the government. Hence, a weaker government will not get as large an increase in the level of reform that can be reached through a compromise as a stronger government.

I have also provided a brief treatment of how the possible "catalytic" effect of an IMF agreement can be thought to influence the outcomes within this model framework. It was shown that if tying the reform program to an IMF agreement would increase the confidence in the aggregate investment response, governments who were not able to generate investment with their reforms on their own might become enabled to do so.

Furthermore, the model implies that conditionality in itself can be sufficient motivation for turning to the Fund for assistance. By binding itself, although rather loosely as the analysis suggests, the government is able to bind the opposition as well and is enabled to push through unpopular reforms without the risking its office. The flipside of this coin is that this feature of IMF conditionality seems most appealing to the governments who are not particalurly interested in very deep reforms.

4.1   Possible extensions

The scope of this thesis is limited, and in some senses realism has had to be sacrificed on the altar of analytical clarity. The upside of this is of course that there are several areas in which the model can be extended and improved upon, the most promising one being, in my opinion, to relax the assumption of a one-dimensional reform package. Structural reform programs usually consists of many qualitively different measures that will be likely to meet varying degrees of opposition. By allowing for the reform package to include qualitively different policies, the political game between the government and the opposition would become more exciting and perhaps illuminate another role for IMF conditionality. This is done in Drazen (2002), which provides a highly enjoyable read.

Furthermore, the modeling of the IMF could be improved upon. In this thesis the Fund is only a part of the model through the conditionality it imposes. Rather than just having IMF lurking in the shadows of the model framework, including it as a proper agent in the model could provide us with some useful additional insights into the role of the Fund as a structural adjustment lender.

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