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DANCING THE H-STREET WALTZ? POLICY IN AID-DEPENDENT COUNTRIES



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Dancing the H-Street Waltz? Policy Choice in Aid-Dependent Countries*

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Abstract

A new aid rhetoric emphasises the selective allocation of otherwise unconditional funds in support of recipients drafting their own sensible plans, in contrast to the old practice of lumping money and policies together in donor-wrapped packages. This line of thinking is supported by both the empirical literature on aid conditionality as well as studies underscoring the need for tailoring policies and institutions to country characteristics. I study the signalling game that arises when recipients have private policy-relevant knowledge. I show that while real ownership might result from their strategic interaction with donors in such a regime, conformity in policy-choice is a definite possibility. The lure of generous aid might induce recipients to play to the sensibilities of outcome-oriented donors, making the latter confident of having sizeable impact even when the former thinks the result is less bang for the aid-buck. In extensions I explore what happens when the actors do not share a common view of how the economy works. When the recipient faces a biased donor, the scope for pooling (separation) is reduced (increased), indicating that “groupthink” is costly. When both actors have their own biases the range of equilibria is much wider. The recipient then sometimes ignores its private information not because it wants to deliver what the donor considers good news, but because it gambles on ending up with the highest possible aid-impact from its perspective. It is shown that donor coordination can, but need not, be beneficial. Finally, if the donor cares about need as well as impact policy-making might improve with aid, but only for countries close to graduating from such external support.

Keywords: Aid, public policies, signalling

JEL-codes: F35, F55, F59, H11

“*When the government [of Tanzania] formulates plans, it certainly keeps in mind what the donors want to hear.*” Bigsten Et Al. (2001: 308)

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1 Introduction

The new Millennium has brought a novel aid rhetoric. The Millennium Declaration expresses a set of ambitious goals for development common to rich and poor countries alike, with more aid being one of them. The Paris and Rome Declarations incorporate the new consensus on the best way to package and deliver aid.¹ After decades of alledgely dancing to the donors' tune, recipient-countries are now to acquire "ownership" of domestic policies.² The rich countries providing much of the resources needed to implement them are to be "partners" only. This implies a responsibility to align their aid with recipients' strategies. Moreover, to reduce the transactions costs associated with their funding donors should coordinate their efforts and harmonise aid delivery practices with the administrative systems of the recipients. However, aid is supposed to become results-oriented, requiring donors to be more selective in their allocation of funds.

Of course, it remains to be seen whether reality will match the rhetoric. So far the signs are mixed. Before dipping in 2006, total aid had gone up every year since 1997, although much of the increase was due to extraordinary events like debt relief. Some bilateral donors (e.g. the Netherlands and Sweden) are cutting down on the number of countries in which they are engaged, and there is some evidence that overall aid allocation has become more selective (Dollar and Levin 2006). The practice of attaching conditions to the transfers - conditionality - has not disappeared from the scene, however, and surveys of progress towards the targets embodied in the Paris Declaration conclude that there is still some way to go before recipient-country ownership is achieved (DAC 2007).

Real ownership might have several benefits. In its original reincarnation, ownership was seen as a remedy for the failures of traditional conditionality (on which, more below), bringing improved rates of policy implementation. Later, the emphasis has been put on respecting recipient-country policy-preferences. To economists, policy-preferences are derived from preferences over outcomes, with various constraints on policy choice factored in. It seems natural to include informational constraints in such a formulation, and to expect to find that optimal policies depend on some exogenous parameters reflecting the "state of the world." Just about any theoretical model of policy choice in economics will deliver such a solution. If one assumes that countries vary with respect to some of these parameters, optimal policies vary across countries. Indeed, from the theory of the second-best we know that optimal policies are highly context-specific. While informational constraints often dictate that advice is based on less-than-perfect knowledge about the state of the economy, it suggest caution in applying blanket recommendations to countries.

In this paper I take the current rhetoric seriously in the sense that I investigate the effect of aid without preconditions on policy choice in developing

¹See DAC (2003a) and DAC (2005), respectively.

²At least in terms of economic affairs, the bilateral donors have tended to follow the lead of the World Bank and the IMF with respect to the conditions attached to aid. The headquarters of the World Bank in Washington, DC are located on H-Street, which also separates the two buildings of the IMF's headquarters. Hence the title.

countries. I assume that optimal policies are state-contingent and that country authorities are better informed than donors about the state of the world. The latter assumption gives rise to a signalling game in which governments deliberate whether to conceal or reveal their private information through their choice of policy. I proceed to demonstrate that even when there is no disagreement over optimal policies between donor and recipient per se, the information asymmetry will for a broad range of parameter-values imply that the latter sometimes optimally chooses an inferior policy given the state it thinks the economy is in. The driving force is the lure of more aid, as donors respond more favourably when they believe the policy is right according to *their beliefs*. Thus, while I find that true ownership might sometimes result from the strategic interaction of donors and recipients, I also show that on other occasions donors will still influence the actions that governments take. The result will be conformity in policy choice across different types of country authorities. This is because outcome-oriented donors can never avoid caring about the results of aid, and recipients will factor this in when making their choices. Governments might change their policies to attract more funds. This makes it difficult to investigate whether real ownership exists in a given situation, as observed policies might differ from the “stand-alone“ policies of recipients even in the absence of efforts at arm-twisting on the part of donors.

The international financial institutions (IFIs) in general, and the IMF and the World Bank in particular, have often been accused of ignoring local realities in both their advisory role and as lenders. Critics charge that country authorities are presented with blue-prints of policies to be pursued in order to qualify for support, most likely drawn from the infamous Washington Consensus. In its weakest form such criticism concerns the neglect of knowledge and information about the economy of a country negotiating with these institutions. This could be interpreted as a critique pointing out the need to source the inputs of the economic models applied by the IFIs locally. My basic model illustrates the problems these institutions are likely to encounter if they adopt this approach. Even under the circumstances most conducive to cooperative behaviour - where the only difference in objectives between the recipient and the donor is that the latter cares about the alternative uses of aid funds - one cannot avoid the basic tension inherent in the aid-relationship: as the donor is a potential source of valuable resources, the recipient will try to maximise the flow of money even at the expense of some reduction in the benefits a single aid-dollar generates.

A stronger charge is sometimes levied, however, namely that the models do not fit the local context. I extend the basic model analysed here to explore how different views on how policy affects aid impact change the results. I first show that the same qualitative pattern of equilibria arises when the donor can be said to be biased. That is, if the disagreement is not too large the recipient-country government always optimally goes by its superior private information, thus revealing it to the donor. Furthermore, as the distance between the two parties in terms of their beliefs about how the economy works increases, conformity sets in, with the government having stronger and stronger incentives to wittingly choose the wrong policy given its private information in order to

convince the donor to open its purse wider. One important difference, though, is that the scope for pooling (separation) is reduced (enlarged). That is, contending views reduce the extent of complete conformity in policy choice on the recipient side, and ensures that policies are more likely to match the government's private signal. This indicates that one should be cautious with respect to the recent healthy emphasis on ownership leading to an uncritical acceptance by donors of the policies presented by recipients. It also highlights the need for donors to invest in country-specific expertise in order to have a solid foundation for their own assessments.

If both parties have their biases outcomes are non-monotonic in the relative bias, with pooling arising both when the authorities' bias is small and when it is large. In the first case, the recipient happily exchanges the lower probability of a large aid impact from its point of view for the ample contribution of the donor that receives "good news." In the second case the government stubbornly gambles on its best case being realised even though this implies less support from abroad. Separation results if biases are relatively balanced, the government being neither deterred from following the signal by the donor's stinginess when hearing not-so-good news nor so one-eyed that it foregoes the additional aid the donor provides when hearing good news. The implication is that donors and recipients should learn to "agree to disagree", as policies are least distorted when the parties are neither in complete agreement nor completely at odds about the realities underlying their relationship. This points to the need for selectivity, which is a healthy notion that holds the promise of providing stronger incentives for recipient authorities to pursue policies that lead to broad-based development, to be medium-term strategy. In the context of country-specificities and asymmetric information one should not withdraw support as soon as differences of opinion arise, but instead carefully evaluate the appropriateness of the government's response given the circumstances it is facing. This point obviously also reinforces the observation above about the need for more country-level expertise in donor agencies, which in itself suggest involvement in a limited number of countries only.

The pros and cons of donor coordination is a long-standing theme in the debate on foreign aid. Many observers have worried that if the donors gang up this will necessarily be to the detriment of poor and weak recipients, but previous theoretical research is inconclusive (see e.g. Torsvik 2005). In the current context, I demonstrate that this is indeed a complex issue. While the constructive engagement of a single donor might be a positive factor if its views do not diverge too strongly from those of the recipient, the extent of policy conformity can also be reduced by having two donors. If the starting point is a donor with a highly biased opinion on what makes aid work, having an advocate for the opposite case might accord the recipient the space to pursue the correct policy given its private information. Thus, the ongoing movement towards "silent partnerships" where one donor manages both its own aid and that of other donors or establishing "lead donors" might lower the quality of

recipient policies.³ Once again, the only way out would seem to be a combination of in-depth knowledge and careful attention to context.

Finally, the results summarised so far are derived in a context where the donor only cares about the cost of aid and its impact. Extending the model to the realistic case where aid is to some extent driven by need as well, I show that aid might in some circumstances improve policy-making. However, this happens only when the country is close to graduating from aid in the sense of potentially having such a high level of domestic income that the level of transfers is zero for some policies. When the upside potential for domestic resource mobilisation is low enough, aid cannot induce better policies and will in some cases distort the recipient's choices. Moreover, aid-seeking produces distortions when the potential for aid having a large impact is strong. This analysis thus provide new angle at the dilemma of selectivity, viz. that in the poorest countries the conditions that are conducive to aid actually having a sizeable impact are on average not present.

The rest of the paper is organised as follows. In the next section I discuss in more detail some of the relevant literature that I have so far only briefly touched upon. In section 3 I outline the main model and derive the different equilibria arising in the game between recipient and donor. A variation on the model that produces qualitatively the same results is presented in section 4. It serves as a stepping stone to section 5, where the extensions where model disagreement is an issue are analysed. Thereafter the case of multiple uncoordinated donors is investigated. In section 7 I explore what happens when both need and impact drive aid volumes. The final section contains some suggestive empirical evidence as well as possible directions for future research.

2 Review of Relevant Literature

I will argue that the empirical evidence contradicts the traditional view that aid donors in general and the IFIs in particular have been able to impose their economic models on developing countries. However, there is growing recognition both among mainstream economists and in the Bretton Woods institutions of the need for tailoring solutions to local circumstances. Both of these strands of literature have probably contributed to the new aid rhetoric that provides the starting point for this paper.

As I have already alluded to, reviews of the effectiveness of conditionality in inducing policy reform are generally negative. In an early contribution, Mosley, Harrigan, and Toye (1991) pointed out that the rate of implementation of World Bank conditionality was substantially below 100%. The conclusion of Killick (1998: 171-172) is a succinct summary of the lessons from his and similar country case studies: “[D]omestic political forces normally carry the day in decisions

³In recent years the transactions costs that the aid system imposes on the administrative systems of recipient governments have received considerable attention. While the proliferation of actors with their own agendas and systems is obviously a huge problem that could be diminished by reducing the number of active donors, I abstract from this issue here.

about economic policy.” Econometric studies of structural adjustment lending by the World Bank and the IMF show that variables proxying for the efforts made by these institutions in designing and monitoring their own programmes do not affect the probability that the reforms are implemented.⁴ However, variables reflecting recipient country politics do. These and related findings have contributed to an emerging consensus expressed well by Dollar and Svensson (1998: 4): “[T]he role of adjustment lending is to identify reformers not to create them.”

Why has the relationship between money-laden institutions staffed to the brim by individuals educated at some of the best universities in the world and cash-strapped governments of the South that are often short of sufficient numbers of well-trained bureaucrats proven to be much less asymmetric than appearance would have one expect? The general answer is the dynamic inconsistency of aid policy, which comes in two guises. Bureaucratic failure follows from the fact that aid agencies are rewarded for moving money, not for producing results.⁵ For example, as a financial intermediary the World Bank is in need of lending its funds to earn a return sufficient to repay its creditors. This incentive permeates the organisation through the usual bureaucratic mechanism of judging funding “needs” from spending levels. Complications arising from the fact that conditionalities are not fulfilled are not welcome, and recipient-country governments know this. As aid contracts are usually not contingent, one can often find some “shock” that can be used to defend the mutually beneficial outcome that lending continues anyway.⁶

Political failure results from the fact that poverty-oriented donors will have a hard time being tough in the face of need, even if the strength of this need is to some extent caused by recipient-country governments not having fulfilled their part of the bargain. This is the well-known Samaritan’s Dilemma, and the consequences are soft budget constraints and insufficient domestic resource mobilisation.⁷ Similarly, rich countries with strong foreign policy interests in a poor country will usually be less than credible when they tell the client government to shape up. Given the voting power of the major developed countries in the IFIs, this influences their decisions on lending as well.

Hence, both the institutions themselves and their critics on the left have exaggerated their powers. As a general rule, they have not been able to impose their views of the world on aid recipients. The latter have time and again been able to get away with perfunctory fulfillment of conditionalities (some of which they would in any case have implemented), partial adherence to the letter of the contract, counter-moves to negate the impact of conditions they feel they

⁴The most important studies are Dollar and Svensson (1998), Easterly (2005a), and Ivanova et al. (2003).

⁵Consult e.g. Easterly (2002).

⁶This is not to say that exogenous shocks do not sometimes constitute good reasons for renegotiating lending programmes, as argued by Conway (2006), but the frequency with which renegotiation occurs and the many examples of egregious breaches of previous conditions being rewarded with more money seem to indicate that there is more to the problem than just ex post adjustments in the light of new knowledge.

⁷See e.g. Hagen (2006a), Pedersen (1996, 2001), and Svensson (2000).

have to implement, and later reversals. This is not to say that conditionality has not been effective somewhere, sometimes, but the room of manoeuvre that even poor country governments have is larger than is commonly supposed in popular debate.

There is therefore much to be said for the new aid regime, where the costly charade of negotiating and renegotiating elaborate “contracts” is replaced by donors choosing from the menu that recipient-country governments developing their own plans in combination present for them. At first glance one would expect both a higher rate of implementation of proposed policies and better plans, if that is what is needed to attract concessional foreign funding.

Better plans, or more suitable policies, will often be based on local knowledge of the economy. There is a growing recognition that blue-prints developed elsewhere do not make for good policies and institutions unless they are adapted to the local context.⁸ As already argued, the theory of the second-best provides a theoretical underpinning for this view. However, there is plenty of empirical evidence pointing in this direction. First of all, the empirical growth literature has had a hard time finding robust relationships between policy variables and economic progress. Despite many studies showing significant associations between some policy measure and growth, they often vanish when the sample or set of accompanying explanatory variables is expanded or the econometric method changed.⁹ Perhaps this is an indication that one is looking for relationships that are less contingent and more universal than can be expected. Indeed, Hausmann, Pritchett, and Rodrik (2005: 328) find that “most growth accelerations are not preceded or accompanied by major changes in economic policies, institutional arrangements, political circumstances, or external conditions. [...] It would appear that growth accelerations are caused predominantly by idiosyncratic, and often small-scale, changes.” Furthermore, Jones and Olken (2005) show that something as peculiar as national leaders has mattered for growth in the second-half of the 20th century, with one avenue being their impact on policies. And finally, as elegantly demonstrated by Easterly (2001), pundits of all varieties have offered an enormous range of supposed panaceas for lagging growth in poor countries. None has been fool-proof. Once again I submit that the reason could be that while these experts were all pointing to variables of potential importance for growth, any one of these fads and fashions in the business of development policy advice was only addressing the major constraint on growth in a few countries.

There is now a burgeoning literature arguing that institutions matter for development. Once one goes beyond policies to consider institution-building the importance of specificity becomes even clearer, c.f. Greif (2006) and North (2005). For what authorities might tinker with are the formal institutions of a

⁸The line of thought emphasising the need for experimentation in order to find out what works fits this mould. Hausmann and Rodrik (2003), Kremer et al. (2001), and Mukand and Rodrik (2005) are prominent examples.

⁹The seminal study making this point is Levine and Renelt (1992). A more recent one is Easterly (2005b). Sala-i-Martin et al. (2004) make greater claims for the robustness of growth determinants, but there are precious few policy variables that pass their test.

society, but these interact with informal institutions to produce outcomes such as (lack of) growth. And this implies that the importation of formal institutions that have been successful elsewhere is no guarantee of progress, as most likely the informal institutions of the importing country differs from that of the exporting one. One must therefore usually adapt the new institutions to fit the local environment if the desired results are to be realised. Berkowitz et al. (2003) has shown that this holds true for legal institutions, for example.

Obviously, economic theory does not always predict that the best policy from some overall perspective is what the authorities find to be optimal here and now. There are many instances where policy-makers might benefit from tying their hands, for example by delegating responsibility to an independent institution.¹⁰ Such delegation can be beneficial even when policy-makers are benevolent. When delegation is not an option, outsiders might help discipline governments. This is an often claimed benefit of international capital flows, which might force governments to shape up lest they be left behind in the competition for mobile capital. However, while such salutary effects are a theoretical possibility recent research demonstrates that this fear might also distort policy choices.¹¹ In a seminal contribution, Mukand (2006) shows that in their eagerness to attract foreign capital governments sometimes rationally ignore their own information about what policies maximise the returns to such investments as the volume of funds depends on *investors' beliefs* about what constitutes the optimal policy in this regard. The driving force of the basic model presented below is the same.¹² My contribution is first of all to frame the problem in terms of policy-choice in countries receiving aid. This is important, as there is a large group of developing countries lacking access to international capital markets on a sustained basis. For these countries, aid is by far the most important source of foreign funds. The controversy surrounding aid conditionality is a long-standing one. Moreover, aid-dependent countries might see a massive inflow of concessional funding if the rich countries step up their assistance programmes in order to achieve the Millennium Goals. Also, aid selectivity could result in some recipients receiving the lion's share of these flows. It is then of major importance to gain a greater understanding of what might happen to policy choice in these generally very poor countries.

A second contribution of my research is to go beyond pure-strategy equilibria and examine what happens when the government might use mixed strategies. It

¹⁰A common denominator for many of these is that policy-making is prone to dynamic inconsistency. Examples can be found in the literature from virtually every field of economic policy-making, including monetary, fiscal, and trade policy. In the context of aid policy, this issue has been analysed by Hagen (2006a) and Svensson (2000).

¹¹The most well-known worry is of course that international tax competition will lead to a race to the bottom in terms of the provision of public goods that do not directly increase the returns to investment. See e.g. Cai and Treisman (2005), who also present a model in which competition for mobile capital might have adverse effects on productive public expenditures. Both Tytell and Wei (2004) and Spiegel (2008) fail to find strong and robust causal evidence that financial globalisation leads to more "disciplined" macroeconomic policies.

¹²My paper actually has more in common with the discussion paper version of Mukand's work (Mukand 1999) as the published version has some additional features that only serves to complicate the model without changing the basic mechanism.

turns out that this leads to less dramatic, but probably more realistic predictions about the size of foreign flows when separating equilibria in which policies always reflect the private information of the government do not exist. Thirdly, I add the extensions just discussed, namely, that donor and recipient have different models of the economy in mind when interacting. Even disregarding the issue of whether the donors have forced the wrong models on poor countries desperate for foreign grants and loans, it seems reasonable to say that there have been numerous occasions when the two parties have had different references with respect to the applicable model. While the end of the Cold War has probably reduced the gulf between rich countries and IFIs on the one side and poor countries on the other when it comes to appropriate policies, one cannot be certain that such controversies will not arise again.¹³ Moreover, the results presented here indicate that it is probably hard to judge the extent of true convergence of opinions as quite a few recipients might find it advantageous to appear to accept the prejudices of the donors.

In sum, the new aid rhetoric seems to be on the right track when the costly and ineffective strategy of conditionality is rejected in favour of selective but unconditional aid and country ownership of policies is set to replace donor blueprints. The remainder of this paper concerns itself with the question of whether money without strings attached ensures that recipient-country policies fully reflect domestic preferences and knowledge.

3 The Basic Model

3.1 A Benchmark

Consider a donor giving aid to a recipient in order to boost the level of consumption there.¹⁴ As in Hagen (2006a), the relationship between the transfer from abroad (T) and recipient country consumption (C) is given by

$$C = Y + \eta T. \tag{1}$$

Here Y is domestic income, which is assumed to be exogenously given, an assumption that allows me to abstract from the Samaritan's Dilemma when illuminating the basic mechanism at work. However, I show in section 7 that the results broadly survive the inclusion of a donor concern about recipient need.

η is the marginal impact of aid on consumption. In other words, η measures the effectiveness of aid in generating greater consumption in the developing country in question. However, in contrast to the situation considered in Hagen (2006a), I assume that η is not given. The recipient-country government may undertake actions that affect the level of aid-impact. Moreover, what actions

¹³Indeed, recent events in Latin America such as Venezuelan President Hugo Chavez threatening to withdraw from the World Bank and the IMF support this assertion.

¹⁴One need not interpret this literally as a situation where there is only one donor. It could be a coordinated group of donors, which is of course what the new aid rhetoric calls for. As already mentioned, I study the case of uncoordinated donors in section 6.

may be desirable from this perspective depends on the state of the world. More specifically, I initially assume

$$\eta(R; S) = \begin{cases} \bar{\eta}, R = S \\ \underline{\eta}, R \neq S \end{cases} . \quad (2)$$

That is, if the policy R is correctly matched with the state of the world S , η attains its highest possible level, $\bar{\eta}$. One may think of $\bar{\eta}$ as being determined by the country's endowment, broadly defined to include the institutional structure, which is difficult to change in the short- to medium-run. However, if $R \neq S$, the full potential of aid is not realised as the policy stance is not optimal given the circumstances the recipient is currently facing.¹⁵ As long as the loss from policy mismatch is not too high, T raises C regardless of what the recipient-country government does. I focus on such cases in the following, i.e., I assume $\bar{\eta} > \underline{\eta} \geq 0$.

What complicates the story is that no-one knows the true state of the world come decision-time. The donor and the recipient share a common prior over the distribution of S , namely, that $S = a$ with probability $p \in (0, 1)$. In addition, the recipient receives a private signal about the true state of the world $\sigma \in \{\alpha, \beta\}$ before making its policy choice. The reliability of the signal is ρ . That is, $\rho = \text{prob}(\sigma = \alpha | S = a) = \text{prob}(\sigma = \beta | S = b)$. This implies that after having observed σ , the recipient updates its beliefs to¹⁶

$$q(\alpha) = \text{prob}(S = a | \sigma = \alpha) = \frac{p\rho}{p\rho + (1-p)(1-\rho)}; \text{ or} \quad (3a)$$

$$q(\beta) = \text{prob}(S = b | \sigma = \beta) = \frac{(1-p)\rho}{(1-p)\rho + p(1-\rho)}. \quad (3b)$$

The following assumption is important in driving the results presented in this section:

Informativeness assumption

$$1 > \rho > p > \frac{1}{2}.$$

Assuming that the skewness in priors is in favour of $S = a$ is innocuous in the sense that assuming $p \in (0, 0.5)$ would yield results that would be mirror-images of the ones I derive. What is important is assuming $p \neq 0.5$, i.e., that the actors a priori thinks that one of the states is more likely to be realised than the other. The assumption that $\rho > p$ is made to allow a role for signalling private information. If $\rho \in [0.5, p)$, the recipient would disregard the signal due to its lack of reliability and go by the common prior instead. The donor would then know that the policy choice made by the recipient has no informational content

¹⁵As an example, consider the macroeconomic impact of aid. If the economy is close to potential output the right policy is to save most of the aid, whereas if there is substantial slack the assistance can be spent without risking unfavourable consequences such as high inflation.

¹⁶Note that these are the probabilities that the signal correctly reflects the underlying state of the world. Without changing any of the results, one could alternatively define $q(\beta)$ as $\text{prob}(S = a | \sigma = \beta)$.

and go by the prior too. Assuming $\rho > p$ thus amounts to assuming that the signal is more informative than the prior. To preserve a degree of skewness ex post, it is also necessary to assume $1 > \rho$, i.e., that the signal is not perfectly reliable.

From the Informativeness Assumption, it follows that¹⁷

Lemma 1

$$1 > q(\alpha) > \rho > q(\beta) > \frac{1}{2}.$$

The proof is simply a matter of investigating what the inequalities imply. One then finds that $q(\beta) > \frac{1}{2}$ is true when $\rho > p$. Thus, as long as the signal is more reliable than the prior, the recipient finds it more likely than not that the true state is b when $\sigma = \beta$ even though its beliefs are a priori skewed against this event occurring. However, the skewness does imply that $q(\alpha) > q(\beta)$; receiving information that confirms the prior belief makes the recipient more certain about the true state of the world than receiving information that contradicts it. Finally, $1 > q(\alpha)$ simply follows from assuming that there is some residual uncertainty after the signal has been observed.

It is intuitive that receiving reliable information about what the state of the world is makes you more confident in your assessment of the likelihood of this event occurring even though you are still not certain of the realities, i.e., that $q(\alpha) > p$ and $q(\beta) > 1 - p$. Moreover, ex ante we know that upon receiving the signal there is a probability ρ that the government is correctly informed about the environment it is facing. Ex post, the government can be even surer about this if its bias in favour of $S = a$ is confirmed, whereas contradictory information makes it rational to attach a lower probability to the event that the true state of the world is correctly reflected by the signal. Figure 1 illustrates in more detail the properties of $q(\alpha)$ and $q(\beta)$.

[Figure 1 about here]

With these preliminaries in place, we can begin to analyse the interaction between the players. The government of the developing country is assumed to maximise the expected value of consumption given its beliefs about the true state of the world after having received the signal σ , i.e.,

$$E[C(R, T) | \sigma] = Y + E[\eta(R) | \sigma] T \tag{4}$$

A useful benchmark for the analysis of the signalling game is the case where the government treats the foreign transfer as given, which corresponds to a situation where the donor can precommit the amount of aid given. The literature on the Samaritan's Dilemma in the context of foreign aid demonstrates that negative incentive effects (beyond any pure income effects) only arise when the donor is a follower in the aid game. It will transpire that this is the case here as well. The empirical literature on the failures of conditionality reviewed above shows that this is a realistic description of the strategic interaction between donors and recipients. Measures of the extent to which recipient-country policies are distorted by aid should therefore take the situation where the donor is the

¹⁷Formal proofs of all lemmas, corollaries, and propositions are given in the appendix.

leader as the benchmark.¹⁸

Given the linearity of the recipient's objective function and the fact that there are only two policy options, the case with precommitted aid is rather straightforward. For example, when $\sigma = \alpha$, choosing a yields a pay-off of $E[C(a, T) | \alpha] = q(\alpha) [Y + \bar{\eta}T] + [1 - q(\alpha)] [Y + \eta T]$ in expectation whereas choosing b results in $E[C(b, T) | \alpha] = q(\alpha) [Y + \eta T] + [1 - q(\alpha)] [Y + \bar{\eta}T]$. Policy a is thus better than policy b if $q(\alpha) > \frac{1}{2}$, which we know from Lemma 1 is true. Similar calculations demonstrate that it is better to opt for b when $\sigma = \beta$ if $q(\beta) > \frac{1}{2}$, a condition that is also satisfied according to Lemma 1.

The donor's objective function is assumed to consist of two elements:

$$W = C(R, T) - \frac{\theta}{2} T^2 \quad (5)$$

That is, the donor wants to raise the level of consumption in the recipient country, but giving aid is costly ($\theta > 0$) so that there will be limits to its generosity. The optimal aid policy maximises the expected value of this function. The donor knows that when the recipient-government treats T as fixed it always maximises the expected effectiveness of aid given its information. As may be seen from (4), for given T maximising expected consumption is equivalent to maximising expected aid-impact. Moreover, optimal government policy does not depend on the aid level. The first-order condition for choosing T optimally is then $E[\eta] = \theta T$, i.e., that the expected marginal benefit of aid equals the marginal cost.

In sum, we have

Proposition 1

When the donor sets the aid level before the recipient observes its private signal,

a) the government always chooses a policy that is in accordance with its private information:

$$R^*(\sigma) = \begin{cases} a, \sigma = \alpha; \\ b, \sigma = \beta. \end{cases} ;$$

b) the optimal amount of aid is $T^* = \frac{E[\eta]}{\theta} = \frac{\rho\bar{\eta} + (1-\rho)\underline{\eta}}{\theta}$.

Since the donor knows that the government will make the most of its private information, the expected level of η (and thus T^*) only depends on the reliability of the signal, which is common knowledge. Observe that this means that more aid is given than would have been the case if the government had no additional information compared to the donor, because by the Informativeness Assumption $\rho > p$ and so expected aid impact is higher.

¹⁸Note that this benchmark differs from that chosen by Mukand (1999, 2006), where the case of public information is adopted. This of course corresponds to the separating equilibrium of his model. Besides the context-specific reasons just given, I believe that it is advantageous to pick a benchmark that is distinct from any of the equilibria of the game. This enables me to compare across all equilibria by holding them to my benchmark.

3.2 The Signalling Game

After establishing a benchmark by assuming that the donor can commit to an aid allocation before the recipient chooses policy, I now move on to the more realistic case where the former moves after the latter. The donor then forms an updated opinion about the true state of the world based on R and its evaluation of the recipient government's incentives to let its private information be reflected in its policy. As we are looking for Perfect Bayesian Equilibria (PBE), this process of updating is governed by Bayes' Rule along the equilibrium path. Figure 2, where N stands for Nature (the exogenous mechanism determining both the state of the world and the value of the signal), G for Government, and D for Donor, illustrates the structure of the game. Note how the donor at the outset is only certain to learn the policy of the government before deciding on the transfer to effect, and how even the government will not know the true state of the world when making its move.

[Figure 2 about here]

To proceed, we need some additional notation. For the donor, let $\varphi(R) = \text{prob}(\sigma = \alpha | R)$ and $\pi(R) = \text{prob}(\eta = \bar{\eta} | R)$ be its assessment of the probability that the recipient received the signal α and that η is high, respectively, given R . Moreover, let $E[\eta(R) | \sigma]$ and $E[\eta | R]$ be the recipient and the donor's assessment of expected aid effectiveness, respectively. For the former, the judgment only depends on σ and its own choice of policy. For the latter, the assessment is shaped by R as well as knowledge of how the other parameters of the model influences the government's incentives to act upon different signals.

It is immediate from Lemma 1 that it is a government of type α that has the strongest incentive to separate out, i.e., to try to convince the donor of the value of σ . When the signal confirms the prior, the loss in expected aid-impact from choosing the wrong policy is higher for the government. Moreover, convincing the donor yields a greater gain in aid inflows compared to the case where the donor goes by the prior. This is because in this case too the donor's optimal policy will be of the form $T = E[\eta | R] / \theta$, as will be shown below. And the donor obviously shares the recipient's ranking when it has the same kind of information. Of course, it might be the case that the donor learns nothing upon observing R and thus goes by the prior. Then the level of η expected by the donor is higher if both types choose policy a than is the case when both choose b . Once again this is due to the skewness of the prior, as we then have $\pi(a) = p > \pi(b) = 1 - p$. It follows that there is also a greater gain in terms of aid flows from breaking out of a pooling equilibrium with policy mismatch for α than for β . In fact, as we shall see, if the donor is sufficiently convinced a priori that $S = a$ a credible signal that $\sigma = \beta$ could actually induce it to decrease T from the level implied by the prior with pooling at a .

I start by looking for separating equilibria in which the government's choice of policy accurately reflects its private information. I will thereafter study PBE where type β chooses a with some strictly positive probability less than one. Finally, I will end this section by demonstrating that the only pooling PBE satisfying a well-known refinement of PBE have $R = a$.

3.3 Separating Equilibria

The conditions that have to be fulfilled if a separating PBE where $R^S(\alpha) = a$ and $R^S(\beta) = b$ is to exist are the following:

$$E[C(a, T^S(a)) | \alpha] \geq E[C(b, T^S(b)) | \alpha]; \quad (6a)$$

$$E[C(b, T^S(b)) | \beta] \geq E[C(a, T^S(a)) | \beta]. \quad (6b)$$

That is, given the donor's response to the two possible policies, it must be better for each type to let its policy reflect its private information. In turn, the donor's response must maximise its objective function given this correspondence between signal and policies, i.e., $T^S(R) = \text{Arg max}_T E[W | R] = E[C(T) | R] - \frac{\theta}{2} T^2$. Here $E[C(T) | R]$ reflects the fact that in a separating equilibrium $\pi^S(a) = q(\alpha)$ and $\pi^S(b) = q(\beta)$ as the donor becomes informed about the signal received by the government.

Separating equilibria exist if the skewness in favour of $S = a$ is not too strong:

Proposition 2

$\exists \underline{p} \in (\frac{1}{2}, \rho)$ such that $\forall p \in (\frac{1}{2}, \underline{p}]$ there is a separating PBE with the following actions and beliefs:

a) the government's policy reflects its signal

$$R^S(\sigma) = \begin{cases} a, \sigma = \alpha; \\ b, \sigma = \beta. \end{cases} ;$$

b) the donor's beliefs are

$$\varphi^S(R) = \begin{cases} 1, R = a; \\ 0, R = b. \end{cases} ;$$

c) the donor gives aid as if it had directly observed the signal:

$$T^S(R) = \begin{cases} \frac{q(\alpha)\bar{\eta} + [1 - q(\alpha)]\eta}{\theta}, R = a; \\ \frac{q(\beta)\bar{\eta} + [1 - q(\beta)]\eta}{\theta}, R = b. \end{cases} .$$

At very low levels of p there is little gain to β from mimicking α as the donor gives just a little bit more aid when being convinced of $\sigma = \alpha$ instead of $\sigma = \beta$. The skewness of the prior is the only reason for giving more aid when the donor is certain that $\sigma = \alpha$, so when p is close to 0.5 pretending to have received this signal instead of β yields just a few additional aid dollars. On the other hand, β knows that mismatching policy and signal in all likelihood reduces aid impact below what might be achieved by choosing b .

[Figure 3 about here]

As the ex ante bias increases there is both a greater gain in terms of aid flows from fooling the donor into thinking $\sigma = \alpha$ (c.f. Figure 3) and less deterrent from β 's private knowledge that aid impact is lower when dissembling, for it is then less likely that $S = b$ even when $\sigma = \beta$. The fact that there is a critical value

of p in the interior of the set of permissible values given by the Informativeness Assumption follows from observing that the gain from mimicking vanishes when the players are no more informed ex ante than had they tossed a coin, whereas the loss vanishes if the prior becomes as informative as the signal.

Corollary 1

$$T^S(a) > T^* > T^S(b).$$

As shown in Figure 3, due to the skewness of the prior the donor responds more favourably to an action that confirms its ex ante bias, even at fairly low levels of this bias: $T^S(a) > T^S(b)$. Interestingly, it is also the case that the donor optimally gives more (less) aid when it cannot commit and $R = a$ ($R = b$). This is so because in a separating PBE the donor knows more ex post than ex ante even though the government's policy is the same as in the benchmark. Here, the donor knows whether the common prior beliefs have been confirmed or disconfirmed, allowing it to fine-tune aid policy with the help of the signal that is originally the government's private knowledge.

So far, the new aid regime is doing good. Unconditional aid is supporting the policies that the government ideally wants to pursue, i.e., those that are expected to maximise aid impact given its private information. Hence, one can say that there is real ownership and that this is for the better for both players given the commonality of their interests when it comes to recipient-country policies. Sadly, we now leave this happy state and will then discover that foreign economic assistance can supply the wrong incentives for decision-makers at the receiving end, making it hard to judge in practice when real ownership exists.

3.4 Semi-Separating Equilibria

Obviously, there can be no fully separating equilibria for $p > \underline{p}$. The search for PBEs here entails looking for parameter configurations where β plays a with positive probability. I will now demonstrate that there is a range of values for the common prior such that while a government of type α still plays the pure strategy a , β mixes between the two policies. Moreover, it will be shown that the probability that the latter mimicks the former, μ , is increasing in p over the range considered. Actions and beliefs in this semi-separating or hybrid equilibrium will be denoted by superscript H .

To start, note that it is still the case that in equilibrium observing b allows the donor to draw the inference that $\sigma = \beta$. Hence, $\pi^H(b) = q(\beta)$ and so $T^H(b) = T^S(b)$. However, if the government chooses a the donor can no longer be certain that $\sigma = \alpha$ and must adjust its beliefs accordingly:

$$\pi^H(a; \mu) = \frac{p\rho + p(1-\rho)\mu}{p\rho + (1-p)(1-\rho) + [p(1-\rho) + (1-p)\rho]\mu} \leq q(\alpha), \quad (7)$$

with equality if and only if $\mu = 0$, i.e., for $p = \underline{p}$. Obviously, $\pi^H(a; \mu)$ is declining in μ as the greater the likelihood that β plays a , the lower the probability that aid impact is high when the policy is a . In fact, $\pi^H(a; 1) = p$ as the donor then learns nothing from observing this particular policy. It follows

that $T^H(a) \leq T^S(a)$, with strict inequality as long as $\mu > 0$. The donor will give less aid since the chances of a mismatch between policy and environment increases when the recipient government does not always choose a policy that is in accordance with its private signal.

In order to make a mixed strategy optimal for β , it must be indifferent between the two pure strategies. The equilibrium conditions are therefore now

$$E[C(a, T^H(a)) | \alpha] \geq E[C(b, T^H(b)) | \alpha]; \quad (8a)$$

$$E[C(b, T^H(b)) | \beta] = E[C(a, T^H(a)) | \beta]. \quad (8b)$$

In the appendix I demonstrate that (7a) and (7b) are satisfied for certain values of p . More precisely, I prove the following:

Proposition 3

$\exists \bar{p} \in (\underline{p}, \rho)$ such that $\forall p \in (\underline{p}, \bar{p})$ there is a semi-separating PBE with the following strategies:

a) the government's policy is

$$R^H(\sigma) = \begin{cases} a, \sigma = \alpha; \\ b \text{ with probability } 1 - \mu(p) \in (0, 1), \sigma = \beta. \end{cases};$$

b) the donor's beliefs are

$$\varphi^H(R) = \begin{cases} \frac{p\rho + (1-p)(1-\rho)}{p[\rho + (1-\rho)\mu] + (1-p)[1-\rho + \rho\mu]}, R = a; \\ 0, R = b. \end{cases};$$

c) the donor gives aid according to the rule

$$T^H(R) = \begin{cases} \frac{\pi^H(a; \mu)\bar{\eta} + [1 - \pi^H(a; \mu)]\eta}{\theta}, R = a; \\ \frac{q(\beta)\bar{\eta} + [1 - q(\beta)]\eta}{\theta}, R = b. \end{cases}.$$

The intuition is as follows. At \underline{p} a government of type β is indifferent between the two policies. For higher levels of the prior, the donor is inclined to increase the difference in aid given upon observing a instead of b if these policies accurately reflect the signal received. For β , this would tip the balance in favour of choosing a too. Yet, if the donor knows that observing a is not foolproof evidence of $\sigma = \alpha$, it will adjust $T^H(a)$ downwards. In equilibrium, the probability that β chooses a is such that after the donor has factored in $\mu(p)$ $T^H(a)$ keeps β indifferent between the two policies. Thus, $\mu(p)$ must be increasing.

Note that $T^H(a) > T^H(b)$. The donor will rationally give more after seeing policy a . As β suffers a loss in expected aid impact by dissembling, it can only be indifferent if there is more aid to be had by doing so. However, as the prior gets more biased, inducing β to mimick α with higher probability, the donor's generosity when observing a diminishes:

Corollary 2

$\exists p' \in (\underline{p}, \bar{p})$ such that $T^H(a) \geq T^* \Leftrightarrow p \leq p'$.

We see here the making of the central message of this paper, namely, that even in the absence of conditionality aid might change the calculus of recipient-country governments and cause conformity in policy-choice. As long as donors are willing to put their money where their mouth is, recipients will realise that there is more aid to be had by acting as if the donors' preconceptions have been confirmed. Here, their own knowledge of the expected loss from this pattern of behaviour still hold recipient-governments back some of the time. But we shall now see that if the donor is sufficiently biased in its beliefs ex ante the authorities will rationally respond by always choosing policy a . That is, there will be complete conformity to strong donor opinions.

3.5 Pooling Equilibria

In a pooling equilibrium, both types of governments choose the same policy regardless of their beliefs. Then the donor is no wiser after observing the equilibrium action. As the other policy is off the equilibrium path, the donor's beliefs is not determined by Bayes' Rule. It is immediate from the results presented in the previous subsection that if $\varphi^P(b) = 0$ (so that $\pi^P(b) = q(\beta)$), where the superscript P denotes variables in a pooling equilibrium, then there is pooling at a for $p \geq \bar{p}$. However, this is not the out-of-equilibrium belief generating the most potential for pooling. I will in this subsection first derive the largest possible space for pooling, then use the Intuitive Criterion of Cho and Kreps (1987) to rule out all candidate pooling equilibria for $p < \bar{p}$. Finally, I will demonstrate that pooling at b is not a PBE.

We are thus looking for pooling equilibria where $R^P(\sigma) = a$, $\sigma = \alpha, \beta$. The worst possible belief that the donor can hold if it for some reason observed the policy b is from the government's point of view $\varphi^P(b) = 1$, implying $\pi^P(b) = 1 - q(\alpha)$. In this case the donor thinks that the government is of type α if it plays b so that there is for certain a mismatch between signal and policy.¹⁹ In fact, Lemma 2 demonstrates that this is the worst potential mismatch, generating the lowest possible aid flow in response.

The equilibrium conditions are then

$$E \left[C \left(a, \tilde{T}^P(a) \right) | \alpha \right] \geq E \left[C \left(b, \tilde{T}^P(b) \right) | \alpha \right], \quad (9a)$$

$$E \left[C \left(b, \tilde{T}^P(b) \right) | \beta \right] \leq E \left[C \left(a, \tilde{T}^P(a) \right) | \beta \right]; \quad (9b)$$

where

$$\tilde{T}^P(R) = \begin{cases} \frac{p\bar{\eta} + (1-p)\eta}{\theta}, R = a; \\ \frac{[1-q(\alpha)]\bar{\eta} + q(\alpha)\eta}{\theta}, R = b. \end{cases}$$

¹⁹Of course, the worst possible belief that the donor can hold about aid effectiveness is that it is certain to be low. However, beliefs in signalling games are over the type of the sender, implying that the least aid is given out-of-equilibrium if the donor thinks the government received the signal α but chose policy b . This distinction is in any case inconsequential for the results derived.

is the candidate equilibrium aid function reflecting that whereas the donor is assumed to be certain of the worst type of policy mismatch when $R = b$, it is no wiser about what the state of the world is when $R = a$ than it was before the government made its move.

It should be clear that (9a) holds. Choosing b when $\sigma = \alpha$ not only raises the government's own expectations of a mismatch between policy and signal, but lowers the donor's expectation of aid effectiveness and thus aid flows as well. So the real issue is when (9b) holds, i.e., when a government of type β will find it opportune to pretend to be the other type. It is fairly intuitive that for large enough p , a government receiving the signal β will nevertheless choose $R = a$. If the prior belief is heavily skewed in favour of $S = a$, the government's expected loss from not matching its policy with the signal is quite low. Moreover, the donor will be inclined to give quite a lot of aid even if it learns nothing about the private information of the government. As $\tilde{T}^P(b)$ is less than $\frac{q(\beta)\bar{\eta} + [1 - q(\beta)]\underline{\eta}}{\theta}$ candidate equilibria exists even for values of the prior below \bar{p} .

However, for $p < \bar{p}$ pooling at a does not survive the application of a common refinement of PBE, namely that both types of government should prefer to stay with the equilibrium even if they could convince the donor of their true type by choosing the out-of-equilibrium action. It is immediate from the results of the last subsection that if the government receives the signal β then for any $p < \bar{p}$ it is strictly better off by choosing b if it convinces the donor of this fact by doing so. It would then get a pay-off of $E[C(b, T^H(b)) | \beta]$, which by (8b) is equal to $E[C(a, T^H(a)) | \beta]$. The latter must exceed $E[C(a, \tilde{T}^P(a)) | \beta]$ as both donor and recipient expects aid impact to be higher when β only chooses a some of the time.

On the other hand, there is no incentive for α to choose b even if this credibly reveals its type. Both the government and the donor then knows that they potentially face the worst kind of mismatch between policy and state of the world, resulting in the lowest possible pay-off to the government. Thus, only for $p > \bar{p}$ are pooling equilibria in which $R = a$ immune to the application of the Intuitive Criterion of Cho and Kreps (1987).

What about pooling at $R = b$? This is not a PBE as the gain to α from choosing b to mimick β can never exceed the loss, even when the donor's response to a is the worst possible one (i.e., $\varphi(a) = 0$). The relative loss is $E[\eta | a, \alpha] / E[\eta | b, \alpha] = [q(\alpha)\bar{\eta} + [1 - q(\alpha)]\underline{\eta}] / [[1 - q(\alpha)]\bar{\eta} + q(\alpha)\underline{\eta}]$, which is the highest possible ratio of expected levels of aid-impact, c.f. Lemma 1. Thus, the equilibrium response of the donor can never compensate for the fact that such a government knows that it trades the best potential match of policy and signal for the worst one.

In sum, we have

Proposition 4

$\forall p \in [\bar{p}, \rho)$ the only PBE that satisfies the Intuitive Criterion are pooling with the following strategies and beliefs:

a) the government's policy is

$$R^P(\sigma) = a; \sigma = \alpha, \beta;$$

b) the donor's beliefs are

$$\varphi^P(R) = \begin{cases} p\rho + (1-p)(1-\rho), & R = a; \\ 0, & R = b. \end{cases};$$

c) the donor gives aid according to the rule

$$T^P(R) = \begin{cases} \frac{p\bar{\eta} + [1-p]\underline{\eta}}{\theta}, & R = a; \\ \frac{q(\beta)\bar{\eta} + [1-q(\beta)]\underline{\eta}}{\theta}, & R = b. \end{cases}.$$

Comparing the results with the benchmark, one finds

Corollary 3

$$T^* > T^P(a) > T^P(b).$$

The first part simply follows from the assumption that the signal is more informative than the prior. The second part is a consequence of there being a loss in expected aid-impact for β from mimicking. Therefore the transfer received when choosing a policy not matching the signal must be greater than the one received with matching. Stated differently we see that here the donor in fact gives more aid when learning nothing than when learning that $\sigma = \beta$. This shows the extent to which donor policies can be driven by strongly skewed initial beliefs.

Thus, we see that for strong enough ex ante bias towards a specific state of the world on the part of the donor, there is complete conformity on the recipient-side. Regardless of the signal received the government chooses to play to the donor's bias by selecting the policy that would be the right one if the latter's presumption turns out to be correct. And this happens despite the signal being more informative than the common prior, because the recipient realises that the donor will transfer such a lot of resources that expected consumption will be higher even when it believes that each aid-dollar would have been more productive if its policy was b .

3.6 Discussion

So far, we have seen that real ownership can be more than just a salutary phrase in aid-dependent countries. However, we have also seen that even without the active use of financial carrots and sticks donors might influence policy choice. Furthermore, this is to the detriment of both recipient and donor alike, as conformity in decision-making implies that one does not make full use of available evidence on local circumstances, rendering policies less than optimal in terms of maximising aid impact. But what does this entail for the amount of aid given? Comparing the equilibria of the confidence game with the benchmark reveals a negative impact of aid-seeking on the external resource flows that can be expected in such a regime:

Proposition 5

Equilibrium aid flows, valued ex ante, are never greater than T^* .

Expected aid flows, $E[T]$, obviously depends on p . The relationship is as follows

$$E[T] = \begin{cases} \nu T^S(a) + (1 - \nu) T^S(b), & p \in (\frac{1}{2}, \underline{p}] ; \\ \nu T^H(a) + (1 - \nu) [\mu T^H(a) + (1 - \mu) T^H(b)], & p \in (\underline{p}, \bar{p}) ; \\ T^P(a), & p \in [\bar{p}, \rho) ; \end{cases} \quad (10)$$

where $\nu = p\rho + (1 - p)(1 - \rho)$ is the ex ante probability that the government receives the signal α .

Intuitively, $\nu T^S(a) + (1 - \nu) T^S(b) = T^*$. In a separating equilibrium, only signal reliability is an issue as the government always follows the cue given by the signal. Thus, although the donor uses this knowledge to fine-tune the aid allocation ex post, ex ante it expects to transfer the same amount as in the benchmark.

Note that in a pooling equilibrium only the amount of aid given when $R = a$ matters in terms of the expected value, as the donor by definition does not expect to give $T^P(b)$. From Corollary 3 it follows that in this range $E[T] < T^*$, except in the limit as $p \rightarrow \rho$. Also, $T^P(a)$ is increasing in the prior as a higher value of p makes it more likely that the state of the world is such that aid impact is maximised for $R = a$. As can be seen from Proposition 4 $T^P(a)$ is in fact linearly increasing in p .

Things are slightly more complex in the range of values for the prior in which the hybrid equilibrium materialises. However, one can show that in this case too $E[T] < T^*$. Thus, it is clear that whenever the common prior takes on values such that there will be conformity to some extent in the equilibrium of the game expected aid flows are below the benchmark. It is interesting to compare this to the work on the Samaritan's Dilemma in the context of aid. When a Samaritan's Dilemma is present, recipients distort their policies in order to attract more aid. This is similar to what the government does here if the signal shows that it is likely that the state of the world is b , provided the prior bias in favour of $S = a$ is large enough. In equilibrium of course, the gains from such aid-seeking are tempered by the donor's diminished generosity in response to this possibility.

If $\sigma = \alpha$ on the other hand, the government always chooses to match its policy with the signal. However, if the likelihood of aid-seeking behaviour in the case of $\sigma = \beta$ is sufficiently strong, correctly choosing policy a still yields less assistance than in the benchmark. In this sense, the government pays for both the donor's inability to commit to a country allocation of aid as well as its own inability to commit to pursuing the policy that maximises the impact of the resources actually transferred in every circumstance. And in expectation, even the slightest possibility of strategic aid-seeking results in less money compared to the benchmark. In contrast, in the "classic" Samaritan's Dilemma, where recipients strategically reduce their own effort in order to increase the total

flow of funds, the result is a greater aid budget. Here, when conformity is an equilibrium phenomenon to some degree less aid is given because the donor realises that aid impact must be expected to be lower.²⁰

One final thing to note is that $E[T]$ is a continuous function (though not necessarily monotonic). This contrasts with the pure-strategy equilibrium results of Mukand (2006), where there is a sharp break in flows when one moves from parameter values resulting in a separating equilibrium to those that result in pooling. I believe that the picture presented here is more realistic, at least for aid-receiving countries, as sharp shifts in aid commitments to specific recipients are rare.²¹

4 The Good News Bias

4.1 Common Bias

Mukand (1999, 2006) demonstrates that essentially the same pattern of equilibria arises when the government and foreign investors have a common unbiased prior, but matching yields asymmetric results. The same can be shown in the current context. That is, assuming $p = 0.5$ but changing $\eta(R; S)$ from the relationship in (2) to

$$\eta(R; S) = \begin{cases} \bar{\eta}, R = S = a, \\ \bar{\eta}, R = S = b, \\ 0, R \neq S, \end{cases} \quad (11)$$

one gets qualitatively the same results, with the equilibrium regions separated by specific values of $\bar{\eta}/\eta > 1$.²² This is the case where pooling arises out of what Mukand (1999, 2006) calls a “good news bias”, namely, that foreign capital flows are larger when the contribution of public goods to the returns to investment is expected to be very high. Similarly, here aid flows will be greater when the donor believes the productivity of aid is $\bar{\eta}$ instead of η . If the gap is sufficiently high the government will have incentives to hide the fact that the signal was β in order to avoid disappointing the donor.

I present these results as a background to the interesting issue of the impact of different opinions about the workings of the economy on the game between recipient and donor. For now, without loss of generality, let $\bar{\eta} = k\eta$, $k > 1$. Thus, k measures the common bias in the actors’ assessment of the function $\eta(R; S)$. Such an asymmetry could be reasonable in quite a few circumstances,

²⁰This also contrasts with the strategic approach to aid fungibility, where other things being equal donor influence over outcomes is a function of the size of the aid budget (c.f. Hagen 2006b). However, such models indicate other ways in which aid could induce recipient governments with conflicting preferences to choose identical policies (also see Hagen 2007).

²¹It is true that aid disbursements are highly volatile, c.f. Bulir and Hamann (2003) and Pallage and Robe (2001). However, it is commonly acknowledged in the aid literature that aid commitments provide a better indication of donor intentions, and commitments are fairly stable across time for most recipients.

²²Needless to say, the assumption $\rho > p$ is retained.

so the bias does not necessarily imply a misconception of the realities on the part of the actors. For example, the policy response of the government could be more important to aid impact in the context of an economics crisis. The right action could allow aid to do a lot of good in mitigating the consequences of the crisis, whereas mishandling the transfer of resources could mean that it is wasted. The differential impact is likely to be much smaller when the economy hums along at its normal pace. This is what is assumed here, as (11) implies $\eta(a; a) - \eta(b; a) > \eta(b; b) - \eta(a; b)$.

Assuming $p = 0.5$ and $\underline{\eta} = 0$ simplifies the derivation of equilibria considerably. Perhaps most importantly, as the signal is equally reliable whatever the true state of the world is, a balanced prior generates a balanced posterior: $q(\alpha) = q(\beta) = \rho$.

In Proposition 6 the results described above are stated formally:

Proposition 6

If the donor and the recipient share a common bias in their judgment of the benefits from matching policy with the environment

a) for $k \in (1, \bar{k}]$, there is a separating equilibrium in which $R^S(\alpha) = a$, $R^S(\beta) = b$, $T^S(a) = \rho\bar{\eta}/\theta$, and $T^S(b) = \rho\bar{\eta}/\theta$;

b) for $k \in (\underline{k}, \bar{k})$, there is a hybrid equilibrium in which $R^H(\alpha) = a$, the government plays a with probability $\mu(k) = \rho[(1-\rho)k^2 - \rho] / [\rho^2 - k^2(1-\rho)^2]$ when $\sigma = \beta$, $T^H(a) = \pi^H(a; \mu)\bar{\eta}/\theta$, and $T^H(b) = \rho\bar{\eta}/\theta$;

c) for $k \geq \bar{k}$, there is a pooling equilibrium in which $R^P(\alpha) = R^P(\beta) = a$, $T^P(a) = 0.5\bar{\eta}/\theta$, and $T^P(b) = \rho\bar{\eta}/\theta$.

Hence, qualitatively the results are the same as when the donor and the recipient share a common prior with skewness. Good news for the donor is still seeing policy a since this implies strong effects of aid in expectation if this policy is understood to be aligned with the signal. The difference is that here the donor becomes enthusiastic about the prospects for its aid because $R = a$ generates a positive probability of *aid impact being very high*. In contrast, in the case of skewed priors this policy was good news because the actors a priori thought it more likely that $S = a$, and thus the donor calculated that with *a very high probability* $R = a$ would result in a large η . The difference is reflected in $T^S(a)/T^S(b)$, for example. Here, it is equal to k . Looking back at Proposition 2 reveals that adding $\underline{\eta} = 0$ to the assumptions applying there for the sake of comparability the corresponding ratio is $\frac{p/(1-p)}{\nu/(1-\nu)}$. Hence, while p is the major determinant of this gap in Section 3, here it is k , which therefore takes on the role of determining the incentives to deceive when the signal is β . Within limits, the disincentive is driven by the same basic force as well, namely, that the recipient knows that choosing a policy that is not in accordance with the signal lowers aid impact in expectation. And like a higher p , a higher k increases the gain and decreases the loss to the government from choosing $R = a$ when $\sigma = \beta$. Thus, eventually it will adapt to strong donor expectations of aid impact and distort its policies.

One way in which this driving force manifests itself is that $T^P(a) > T^P(b)$.

So, like the bias imparted by skewed priors about the economy’s fundamentals, the good news bias make the donor willing to pay more when observing policy a even when it learns nothing and would have been sure that the government’s private information was $\sigma = \beta$ if it saw $R = b$. One noteworthy difference though, is that for a large enough bias of the latter form this differential in “willingness to pay” for policies ceases to be the decisive factor. For $k > \bar{k} > \bar{k}$ the government would actually take the gamble on reaching the highest level of aid impact upon seeing $\sigma = \beta$ even if this resulted in no more aid than following the signal.

4.2 Comparison with Benchmark

How does these outcomes compare to the benchmark? It is still the case that when the government treats aid as predetermined, it chooses policies to maximise expected aid impact. However, now this is not enough to ensure that policy is always aligned with the signal

Proposition 7

When $p = 0.5$ and $\eta(R; S)$ is given by (11), the following policies and donation result if the donor can precommit its support:

- a) the government chooses the signal-dependent policy

$$\begin{aligned} R^{**}(\alpha) &= a; \\ R^{**}(\beta) &= \begin{cases} b, k \leq \bar{k}; \\ a, k > \bar{k}; \end{cases} \end{aligned}$$

- b) the optimal amount of aid is

$$T^{**} = \frac{E[\eta]}{\theta} = \begin{cases} \frac{0.5\rho(\bar{\eta} + \bar{\eta})}{\theta}, k \leq \bar{k}; \\ \frac{0.5\bar{\eta}}{\theta}, k > \bar{k}; \end{cases}$$

Thus, now there can be pooling even when aid is precommitted. This is of course just a corollary of the observation made above: if the asymmetry in the link between policy and aid impact is large enough, the recipient will choose to disregard the signal when $\sigma = \beta$ even if this generates no more aid. It will then bet on the positive, albeit small, probability that the signal is erroneous so that selecting policy a leads to a very strong impact of donor funds on consumption. When $\eta(R; S)$ is symmetric but the actors’ priors are skewed this cannot happen as opting for a policy that does not match the signal always lowers expected aid impact from the government’s perspective.²³ The donor’s relative willingness to pay for policies is then the only possible source of policy distortion, and with precommitment it is ruled out.

²³More technically, the difference reflects that whereas comparative statics are confined to a limited space when priors are skewed, here there is in principle no limit to the size of the common bias.

It remains the case that in ex ante terms the amount of aid given in equilibrium never exceeds the benchmark level. Combining propositions 6 and 7, we get

Corollary 4

When there is a common bias in the assumed relationship between policy and aid impact $E[T] \leq T^{**}$.

Unsurprisingly, the ex ante value of equilibrium aid in the signalling game is identical to T^{**} as long as separation is the outcome.²⁴ In the interval where the government plays a mixed strategy if $\sigma = \beta$, the donor gives less money in expectation due to the negative effect on aid impact of the aid-induced policy distortion. As illustrated in Figure 4 this result naturally extends to some of the values of the common bias that generate a pooling equilibrium. However, if the actors are sufficiently biased (i.e., $k > \bar{k}$) the same amount of aid will in expectation be given in the pooling equilibrium as in the benchmark. Or, perhaps more to the point: in this region, the common belief in aid being very influential in raising consumption levels leads to policy distortions regardless of whether aid reacts to policy or not.

[Figure 4 about here]

5 Contending Worldviews

5.1 Biased Donor

I now take the analysis in a different direction by assuming that donor and recipient does not concur when it comes to the assumed shape of $\eta(R; S)$. The motivation behind this change is that development policy has been a minefield for fifty years. Initially, both the majority of Western academics and the IFIs preached interventionist policies to the developing countries, arguing that domestic and international market failures implied that development strategies should be statist as well as inward-looking. Pro-market observers like Milton Friedman and Peter Bauer protested from the side-lines and increasingly won acceptance for their views, partly because of disappointing growth in the south and partly due to a general ideological shift in the rich countries. Eventually the IFIs initiated structural adjustment lending, where removing government distortions allegedly preventing markets from operating efficiently was a major component. Since then, the political left has charged that the IFIs contribute to dismantling the state and leave the poorest inhabitants of developing countries open to the ravaging effects of free-market capitalism. In fact, as soon as the easiest reforms had been implemented, the problems associated with deeper and more structural (“second-generation”) reforms lead to talk of the need for an expanded Washington Consensus. The rise of the East Asian Tigers made some analysts argue that there was an Asian path to prosperity, and the

²⁴Though, as may be easily checked, here too $T^S(a) > T^{**} > T^S(b)$ as the donor benefits from fine-tuning aid in the game.

financial turmoil at the end of the 20th century had others declare the Washington Consensus dead and buried, whether revised or not. The recent turn to the left in Latin America, where presidents like Hugo Chavez of Venezuela talk of withdrawing from the IFIs altogether and take a different route, demonstrates that controversy over what constitutes the correct set of developmental policies persists. Thus, even if conditionality is indeed replaced by “ownership”, differences of opinion between recipients and donors are unlikely to vanish; nor should they, given the fact that not all governments are developmental and that donors in principle should try to make sure that aid monies are used to further progress in recipients (however defined).

Now what happens when the donor and the government do not concur in their views on the right economic model? Assume that the government adheres to the model expressed by equations (1) and (2). The only changes I make is to normalise aid effectiveness with misalignment to zero ($\underline{\eta} = 0$) and set $p = 0.5$. That is, none of the actors have beliefs that are biased in favour of one of the policies *ex ante*. It should be clear that in this case the government will always follow the signal if left to its own devices. However, what will it do if the donor is convinced that the relationship between R and S shaping aid effectiveness is given by (11)? Assume that this description of the situation is common knowledge to the parties. Without loss of generality, let $\bar{\eta} = d\bar{\eta}$, with $d > 1$. Thus, the donor believes the gain from alignment is higher if $S = a$. In other words, d measures the donor’s bias towards policy a . It is then straightforward to prove the following proposition:

Proposition 8

If the donor but not the recipient has a biased assessment of the gains from aligning policy with the state of the world,

a) for $d \in (1, \underline{d}]$, there is a separating equilibrium in which $R^S(\alpha) = a$, $R^S(\beta) = b$, $T^S(a) = \rho\bar{\eta}/\theta$, and $T^S(b) = \rho\bar{\eta}/\theta$;

b) for $d \in (\underline{d}, \bar{d})$, there is a hybrid equilibrium in which $R^H(\alpha) = a$, β plays a with probability $\mu(d) = \rho[(1 - \rho)d - \rho] / [\rho^2 - d(1 - \rho)^2]$, $T^H(a) = \pi^H(a; \mu)\bar{\eta}/\theta$, and $T^H(b) = \rho\bar{\eta}/\theta$;

c) for $d \geq \bar{d}$, there is a pooling equilibrium in which $R^P(\alpha) = R^P(\beta) = a$, $T^P(a) = 0.5\bar{\eta}/\theta$, and $T^P(b) = \rho\bar{\eta}/\theta$.

The analysis show that ideological cleavages or more mundane differences of opinion about what the right model is need not always produce policy distortions due to aid-seeking. But it does demonstrate that unless these differences are relatively small, recipient governments will refrain from making the most of their private information, to the detriment of both themselves and the donors. However, an unexpected result is that policy-making can nevertheless improve when compared to the case of a common bias:

Corollary 5

When only the donor is biased, the space for separation is enlarged and the space for pooling is reduced.

Technically, it may be seen from propositions 6 and 8 that $\underline{d} > \underline{k}$ and $\bar{d} > \bar{k}$. Intuitively, when the recipient has a balanced assessment of what correct

matching of policy and signal brings this serves as a check on its proclivity towards presenting the donor with false good news. In other words, a common bias magnifies the distortion as the recipient sees a positive probability of both a very high level of aid impact and large aid flows when dissembling. The first effect disappears when only the donor thinks the $\eta(R; S)$ -function is asymmetric.

This is an interesting result, for many observers have pointed out a perceived tension in the new aid rhetoric between ownership and aid selectivity. Statements such as “ownership exists when recipients do what we want them to do but they do so voluntarily” indicate how hard it is for donor officials to set their own objectives aside and align their policies with those of the recipient.²⁵ Thus, Van de Walle (2005: 67, emphasis in original) argues that “[i]n practice, the move from conditionality to selectivity often entails a degree of *ventriloquism*, in which the donors make clear what their policy expectations are, and governments understand what they need to say and do in order to get the foreign assistance.” While the main thrust of my analysis corroborates this problematic side of the new aid rhetoric, Corollary 5 highlights a less well understood side of the story. If ownership is taken to mean the unquestioned adoption of the viewpoints of recipients, the pressures for conformity might actually increase compared to the case where donors enter the fray after having done their homework. Constructive engagement could thus dominate groupthink, even if the former means that donors bring their own opinions to the table and the latter is implied if the ownership concept is taken literally. While this will not eliminate the pressures for conformity to donor expectations, it could paradoxically alleviate them.

5.2 When Minds Clash

The analysis in the previous subsection focuses on asymmetries in the donor’s assumed relationship between R and S . This is loosely in line with the tone of popular debate, which often pits the donors in general and the IFIs in particular as heavy-handed preachers of the gospel of free markets to benevolent governments selflessly trying to put their countries on the path to prosperity. However, one should not forget that similar biases are in many cases likely to exist on the recipient-side, as the following quote from a case-study of donor-recipient interaction in Côte d’Ivoire demonstrates:

The [Ivorian] experience is special also in that it has been marked by a highly contentious relationship with the Bretton Woods Institutions. Unlike most countries, whose reform efforts follow acknowledged failures of development policies, the ... political leadership retained its belief in the validity of its own development model, which had for decades been widely regarded as successful - indeed as an “economic miracle; it was thought to be only temporarily derailed after 1980. The reform model of the Bretton Woods Institutions was viewed to be ideologically based and thus unsuitable. Berg et al (2001: 365)

Ideologically motivated government usually have their own hang-ups. Ide-

²⁵The quote is from Helleiner (2002: 255).

ologies are not only systems of normative prescriptions, but contain models of the world as well.²⁶ What happens when a biased donor meets a biased recipient? Assume that while the donor adheres to the model in (11), the recipient believes the following is the correct description of the link between policy and the environment:

$$\eta(R; S) = \begin{cases} \hat{\eta}, R = S = a, \\ \hat{\eta}, R = S = b, \\ 0, R \neq S, \end{cases} \quad (12)$$

In line with the analysis in the rest of this section, I use a parametric formulation for the government's bias: $\hat{\eta} = g\bar{\eta}$, with $g > 1$. This allows me to investigate how different combinations of assumed asymmetries on each side in the donor-recipient relationship shapes outcomes. In fact, it turns out that only the relative bias ($r = g/d$) matters. Proposition 9 states the results, while Figure 5 illustrates them.²⁷

Proposition 9

If both donor and recipient have their own biased assessments of the gains from matching policy with the underlying state of the world,

a) for $r \in (0, \underline{r}]$, there is a pooling equilibrium in which $R^P(\alpha) = R^P(\beta) = a$, $T^P(a) = \bar{\eta}/2\theta$, and $T^P(b) = \rho\bar{\eta}/\theta$.

b) for $r \in (\underline{r}, \bar{r})$, there is a hybrid equilibrium in which $R^H(\alpha) = a$, the government plays a with probability $\mu(r; \beta) = \rho[(1 - \rho) - \rho r] / [\rho^2 r - (1 - \rho)^2]$ when $\sigma = \beta$, $T^H(a) = \pi^H(a; \mu)\bar{\eta}/\theta$, and $T^H(b) = \rho\bar{\eta}/\theta$;

c) for $r \in [\bar{r}, \bar{\bar{r}}]$, there is a separating equilibrium in which $R^S(\alpha) = a$, $R^S(\beta) = b$, $T^S(a) = \rho\bar{\eta}/\theta$, and $T^S(b) = \rho\bar{\eta}/\theta$;

d) for $r \in (\bar{\bar{r}}, \bar{\bar{r}})$, there is a hybrid equilibrium in which the government plays a when $\sigma = \alpha$ with probability $\mu(r; \alpha) = [2\rho^2 - (1 - \rho)r] / [\rho^2 - (1 - \rho)^2 r]$, $R^H(\beta) = b$, $T^H(a) = \rho\bar{\eta}/\theta$, and $T^S(b) = \pi^H(b; \mu)\bar{\eta}/\theta$;

e) for $r \geq \bar{\bar{r}}$, there is a pooling equilibrium in which $R^P(\alpha) = R^P(\beta) = b$, $T^P(a) = \rho\bar{\eta}/\theta$, and $T^P(b) = \bar{\eta}/2\theta$.

[Figure 5 about here]

The intuition is as follows. Fix d . As long as the government's bias is sufficiently low compared to the donor's, there will be a pooling equilibrium in which the former plays a regardless of its private information. This is obviously optimal as long as the signal indicates that this policy is the right match with the environment. But even if $\sigma = \beta$, the government happily exchanges the positive probability of a resulting in a low η for the generous aid provided by the donor,

²⁶For recent work on ideology in economics, see e.g. Benabou (2008) and Benabou and Tirole (2006), as well as the references cited therein.

²⁷Note that for simplicity the figure is drawn in terms of the mixed strategies pursued by the government for different values of σ even in regions where the government optimally plays a pure strategy. Also note that I am saving on notation by not differentiating between the players' strategies in the two pooling and the two hybrid equilibria, even though they may be seen to be different.

which is enthusiastic about the prospect of its money potentially having a very large effect. This is consistent with what happened in Côte d'Ivoire, where the outcome was conformity to donor expectations some extent:

Until 1994, avoidance of arrears and maintenance of donor inflows was the overriding Ivorian objective, diverting official energies from agreed reform programs. So many reforms had little government ownership; they were the price to be paid for external support. In addition, many Ivorians were unconvinced that some of the reforms were soundly conceived. Berg et al (2001: 440)

Returning to the model, as r increases the government becomes more and more concerned with not having a chance of attaining maximum aid impact from its perspective. It thus starts to optimally mix between the two policies when $\sigma = \beta$. Further increases in r eventually makes it optimal for the government to always let its policy reflect the signal. This is because choosing a when $\sigma = \alpha$ leads to a relatively high probability of pursuing the right policy as well as a lot of aid. Going for b in the opposite case makes for a less positive response from the donor, but the government thinks that not only is there a high probability of the policy being correct; this is also its favourite policy in terms of assumed aid-impact. In a sense, the two actors' biases balance each other, with the donor's reward for choosing the right policy even when the government thinks that η is likely to be distinctly average being sufficiently large and the donor's stinginess when observing policy b not being sufficient to deter the government from pursuing what it believes is the policy that leads to the highest possible value of η given $\sigma = \beta$. Thus, it is intuitive that $r = 1$ is one of the values for which this equilibrium arises.

If, however, the government becomes even more single-minded in its views it will start to gamble when receiving contrarian evidence, sometimes choosing b when $\sigma = \alpha$ in the pious hope that this could still turn out to be the correct policy. A truly one-eyed government will always choose b , its strong beliefs more than compensating for the fact that both aid flows and the probability that they do a lot of good are low. In fact, the government is then so biased that it is content with getting less aid when following policy b compared to what would result from choosing policy a . This strong result also applies in the other pooling equilibrium:

Corollary 6

In the two pooling equilibria of the model where both donor and recipient are biased, the equilibrium policy generates less aid than the policy that is off the equilibrium path.

Such a situation could not arise in the pooling equilibrium of the model analysed in subsection 3.5, as the government then had to be compensated for choosing the policy that resulted in the lowest probability of aid impact being high by getting more aid when mimicking.

So the greatest change is that the government now sometimes dissembles when the signal shows α too, gambling on receiving good news from its perspective. In contrast to what transpired in the section 3 and in Mukand (1999, 2006) the good news bias might influence both donor and recipient, albeit from different angles. Since the cut-off rates listed in Proposition 9 are stated in terms of

the actors' relative bias, it follows that for any $d > 1$ one can find values of $g > 1$ such that one of the five types of equilibria described is realised. Moreover, as the donor's bias strengthens, the continuum of values for g that is compatible with any one type of equilibrium widens. In other words, it is not the case that the more biased the donor is the narrower is the range of outcomes produced by aid policy. To the contrary, all types of equilibria always exist and the more biased the donor is the more robust is any one equilibrium to a small change in the government's bias. Figure 6 illustrates these implications of Proposition 9.

[Figure 6 about here]

6 Uncoordinated Donors

While there is much talk of donor coordination currently, with the aim of reducing the administrative burden that aid puts on recipient governments, and some progress, especially among donors providing budgetary support, the reality on the ground is still one of diverse demands and expectations from the donors. Moreover, a long-standing worry has been that donor coordination would worsen the bargaining position of recipient-country governments. Previous theoretical research on this issue does not provide a clear-cut answer to whether recipients win or lose from such coordination (Torsvik 2005). It is obvious that the conclusions drawn so far would not change if there were two identical donors instead of one. But what would the recipient do in the presence of two donors with diametrically opposed views on $\eta(R; S)$? Would conflicting donor preconceptions of the link between policy and aid impact create space for the government to pursue the right policy as indicated by its private signal?

To answer these questions I now investigate what happens if uncoordinated donors provide unconditional aid. I allow for the possibility that the decisions of the donors are based on diverse views about what policy will provide the most leverage for aid money. Specifically, I assume that there are two donors (or coherent groups of donors).²⁸ They maximise

$$E[W_j | R] = Y + E[\eta_j | R]T - \frac{\theta}{2}T_j^2, j = 1, 2,$$

where now $T = T_1 + T_2$ and

$$\eta_1 = \eta_1(R; S) = \begin{cases} d_1, R = S = a, \\ 1, R = S = b, \\ 0, R \neq S, \end{cases} ; \quad (13a)$$

$$\eta_2 = \eta_2(R; S) = \begin{cases} 1, R = S = a, \\ d_2, R = S = b, \\ 0, R \neq S, \end{cases} \quad (13b)$$

²⁸This is of course without loss of interesting generality with only two possible states of the world and donors' objective functions being linear in recipient consumption.

The recipient is assumed to have a symmetric view of the cost and benefits of mismatching or aligning signal and policy. Thus, its opinion of the $R - S$ -relationship is expressed by (2), but for simplicity I normalise both levels of aid impact: $\eta(a; a) = \eta(b; b) = 1$ and $\eta(a; b) = \eta(b; a) = 0$. In contrast, I assume $d_1, d_2 > 1$. Both donors are therefore biased relative to the recipient and the extent of bias is measured by d_j . The assumption that their cost of aid functions are the same will be relaxed in due course.

Define $\delta = (1 + d_1) / (1 + d_2)$. This is the most convenient measure of the relative bias of the two donors. The outcome can now be shown to be a pattern of equilibria that is the mirror image of the one described in Proposition 9:

Proposition 10

If there are two donors with opposite biased assessments of the gains from aligning policy with the state of the world,

a) for $\delta \in (0, \underline{\delta}]$, there is a pooling equilibrium in which $R^P(\alpha) = R^P(\beta) = b$, $T_1^P(a) = \rho d_1 / \theta$, $T_1^P(b) = 1/2\theta$, $T_2^P(a) = \rho / \theta$, and $T_2^P(b) = d_2 / 2\theta$;

b) for $\delta \in (\underline{\delta}, \bar{\delta})$, there is a hybrid equilibrium in which the government plays a when $\sigma = \alpha$ with probability $\mu(\delta; \alpha) = [2\rho^2\delta - (1 - \rho)] / [\rho^2\delta - (1 - \rho)^2]$, $R^H(\beta) = b$, $T_1^H(a) = \rho d_1 / \theta$, $T_1^H(b) = \pi^H(b; \mu) / \theta$, $T_2^H(a) = \rho / \theta$, and $T_2^H(b) = \pi^H(b; \mu) d_2 / \theta$;

c) for $\delta \in [\bar{\delta}, \overline{\delta}]$, there is a separating equilibrium in which $R^S(\alpha) = a$, $R^S(\beta) = b$, $T_1^S(a) = \rho d_1 / \theta$, $T_1^S(b) = \rho / \theta = T_2^S(a)$, and $T_2^S(b) = \rho d_2 / \theta$;

d) for $\delta \in (\overline{\delta}, \bar{\delta})$, there is a hybrid equilibrium in which $R^H(\alpha) = a$, the government plays a with probability $\mu(\delta; \beta) = \rho[(1 - \rho)\delta - \rho] / [\rho^2 - \delta(1 - \rho)^2]$ when $\sigma = \beta$, $T_1^H(a) = \pi^H(a; \mu) d_1 / \theta$, $T_1^H(b) = \rho / \theta$, $T_2^H(a) = \pi^H(a; \mu) / \theta$, and $T_2^H(b) = \rho d_2 / \theta$;

e) for $\delta \geq \bar{\delta}$, there is a pooling equilibrium in which $R^P(\alpha) = R^P(\beta) = a$, $T_1^P(a) = d_1 / 2\theta$, $T_1^P(b) = \rho / \theta$, $T_2^P(a) = 1/2\theta$, and $T_2^P(b) = \rho d_2 / \theta$.

Note that the cut-off rates for relative bias are identical to those in Proposition 9 (i.e., $\underline{\delta} = \underline{r}$, $\bar{\delta} = \bar{r}$, etc.). Hence, the only differences are that a (b) is played with greater frequency than would be warranted by the signal in the absence of asymmetric information for high (low) values of relative bias instead of low (high) values. Here, with the expected cost to the government of deviating from the policy implied by σ being symmetric, the direction of aid-seeking is determined by which donor has the highest willingness to pay for good news. This is determined by the relative bias, so that the government “sweet-talks” one donor whenever it is sufficiently impressable compared to the other. When donors are mirror images of each other in terms of their opinions about the relationship between policy and aid impact, separation thus results

Corollary 7

When $\delta = 1$, the equilibrium is separating.

The intuition that donors representing roughly identical but opposing forces discourages aid-seeking by the government is hence confirmed. This shows that having more than one source of aid funds could be beneficial if the alternatives

act like advocates for opposing worldviews. Looking back at Proposition 8, we see that if the single donor is joined by another that has the opposite view of what is good news, the situation could change from one where aid distorts policy to one where it does not. For example, if the starting point is that only donor one is present, and $d_1 = \bar{d}$ so that there is pooling, it is easy to calculate the strength of the bias of donor 2 that is necessary to bring about separation if the latter also establishes a presence in the recipient. While an integral part of the new aid rhetoric that promises important benefits in terms of reducing the transaction costs of aid delivery, donor coordination is therefore not necessarily something that should be pursued uncritically.²⁹

Obviously, the willingness to pay for different policies realistically depends not only on donors' views of the likely impact of their aid, but also on their costs of providing resources. How do cost differences across donors with opposite biases affect policy choice in the recipient? Define $\tau = \theta_1/\theta_2$. Then we have

Proposition 11

If there are two donors with opposite biases and possibly different marginal costs of providing aid

a) for $\tau \in (0, \underline{\tau}]$, there is a pooling equilibrium in which $R^P(\alpha) = R^P(\beta) = a$, $T_1^P(a) = d_1/2\theta_1$, $T_1^P(b) = \rho/\theta_1$, $T_2^P(a) = 1/2\theta_2$, and $T_2^P(b) = \rho d_2/\theta_2$;

b) for $\tau \in (\underline{\tau}, \underline{\tau})$, there is a hybrid equilibrium in which with probability $\mu(\tau; \beta) = [2\rho^2(d_1 + \tau) - (1 - \rho)(1 + \tau d_2)] / [\rho^2(d_1 + \tau) - (1 - \rho)^2(1 + \tau d_2)]$ $R^H(\alpha) = a$, the government plays a when $\sigma = \beta$, $T_1^H(a) = \pi^H(a; \mu)d_1/\theta_1$, $T_1^H(b) = \rho/\theta_1$, $T_2^H(a) = \pi^H(a; \mu)/\theta_2$, and $T_2^H(b) = \rho d_2/\theta_2$;

c) for $\tau \in [\underline{\tau}, \bar{\tau}]$, there is a separating equilibrium in which $R^S(\alpha) = a$, $R^S(\beta) = b$, $T_1^S(a) = \rho d_1/\theta_1$, $T_1^S(b) = \rho/\theta_1$, $T_2^S(a) = \rho/\theta_2$, and $T_2^S(b) = \rho d_2/\theta_2$;

d) for $\tau \in (\bar{\tau}, \bar{\tau})$, there is a hybrid equilibrium in which with probability $\mu(\tau; \alpha) = \rho[(1 - \rho)(d_1 + \tau) - \rho(1 + \tau d_2)] / [\rho^2(d_1 + \tau) - (1 - \rho)^2(1 + \tau d_2)]$ the government plays a when $\sigma = \alpha$, $R^H(\beta) = b$, $T_1^H(a) = \rho d_1/\theta_1$, $T_1^H(b) = \pi^H(b; \mu)/\theta_1$, $T_2^H(a) = \rho/\theta_2$, and $T_2^H(b) = \pi^H(b; \mu)d_2/\theta_2$;

e) for $\tau \geq \bar{\tau}$, there is a pooling equilibrium in which $R^P(\alpha) = R^P(\beta) = b$, $T_1^P(a) = \rho d_1/\theta_1$, $T_1^P(b) = 1/2\theta_1$, $T_2^P(a) = \rho/\theta_2$, and $T_2^P(b) = d_2/2\theta_2$.

Note that some of these cut-off rates are irrelevant (i.e., negative or infinite) for some values of the donors' biases. In other words, not all of these equilibrium regions exist for all parameter values. In particular, we have

Corollary 8

a) For $1 < d_1, d_2 \leq \rho/(1 - \rho)$ only the separating equilibrium exists.

b) For $d_1, d_2 \leq 2\rho^2/(1 - \rho)$, there are no pooling equilibria.

Part a) is both a generalisation of Proposition 10 and a restatement of Proposition 8. If $\tau \rightarrow 0$ or $\tau \rightarrow \infty$ there is in effect a single donor and aid does not bias the decision-making process if this donor's willingness to pay for good news is fairly low. The generalisation is that for two donors' with contradictory opinions of what constitutes good news, their relative costs of providing aid does

²⁹For a definition and examples of "delegated cooperation", see chapter 6 of DAC (2003b).

not matter if their models of the world are not too dissimilar to that of the recipient. This is due to the fact that if a donor’s cost of giving rises it donates less regardless of what policy is observed. Thus, the ratio of total aid flows that the two policies produce is not that sensitive to changes in θ_j . In this sense the main driving force for policy distortions is the donors’ relative biases, not their relative costs. Part b) reinforces this point by showing that a donor needs to be fairly strongly biased in its views on the link between policy and aid impact before even large cost advantages induce the recipient to choose the same policy regardless of its private information.

As the new aid rhetoric is taken seriously in this paper, it is appropriate to consider what impact any progress towards donor coordination might have in the framework applied here. Coordination could mean many things, however. Indeed, seven indicators are presented in the Rome-declaration: conditionality is streamlined, sector programmes are supported, reliance on delegated co-operation, donor field missions are co-ordinated, diagnostic reviews are streamlined, donors disclose information on aid flows, and donors share country analytic work. In the Paris Declaration the number is down to two: use of common arrangements or procedures as measured by the percent of aid provided as programme-based approaches; and encourage shared analysis, as measured by percent of (a) field missions and/or (b) country analytic work, including diagnostic reviews that are joint. As I here assume that donors provide programme aid in the form of unconditional budget support and do not go into the nitty-gritty details of donor-recipient interaction such as the implementation and effects of field missions, diagnostic reviews, and analytic work, I focus on coordination of expectations. Specifically, I assume that both donors take the relationship between policy and aid impact to have the following form:

$$\eta(R; S) = \begin{cases} d_a, R = S = a, \\ d_b, R = S = b, \\ 0, R \neq S. \end{cases} \quad (14)$$

Here $d_a = \xi d_1 + (1 - \xi)$ and $d_b = \xi + (1 - \xi) d_2$, with $\xi \in (0, 1)$. This may be seen as a simplified representation of a complicated process of coordinating field missions, diagnostic reviews, and analytic work and/or improved sharing of the information gathered in such exercises and discussion of the knowledge gained, leading to a convergence of views among donors. Besides being unrealistic given current progress towards donor coordination, the case of fully coordinated donors corresponds to a situation where there is only one donor, which has been extensively analysed above.

Note that this form of coordination does not imply full coordination of policies, as the two donors will still choose their level of support non-cooperatively. Once again this is realistic, as there is little to suggest that donors are even remotely close to choosing aid levels that are based on the maximisation of some “integrated” objective function. However, it does not matter for the main result, which is³⁰

³⁰That is, the same result will emerge if each donor’s aid is chosen to maximise the weighted

Proposition 12

For all $1 < d_1, d_2 < \infty \exists \xi \in (0, 1)$ such that the equilibrium is separating.

Hence, we see that even in the limited version considered here donor coordination has the potential for improving matters by eliminating the policy-distortion that can be a consequence of aid-seeking. The incentive to go for more money at the expense of impact is weakened if donors take less extreme views. Encouraging consensus among contributing donors would therefore seem to be an important, but perhaps neglected, part of the effort to harmonise donor practices.

This does not imply that such consensus-decisionmaking is unambiguously good. Total aid flows to the recipient might go down in the process. To study this issue in more detail is an interesting topic. However, a complete analysis would seem to require an elaboration on how donors might arrive at a consensus through information-sharing. Going beyond the short-cut adopted here is therefore left for future research.

7 Need or Impact: Which Generates the Greatest Aid Flows?

As already discussed, dynamic inconsistency is likely a major explanation of the failure of traditional conditionality. In the variant known as the Samaritan's Dilemma, altruistic donors lacking commitment devices will be unable to refrain from responding to need even if this generates poor incentives for domestic efforts at alleviating poverty.³¹ In effect, recipients face a soft budget constraint. So far I have assumed that domestic income is exogenous. If domestic income also depends on whether the government's policy is matched with its private information, the recipient must take into account how the donor balances need for aid with the impact it can have. While there is a sense in which both low need and high impact are good news for an altruistically minded donor, if these twin conditions are deemed highly likely to coexist it is not clear how its response in terms of aid flows will be as they give rise to countervailing incentives. A positive correlation between the state of the economy and the capacity to use aid well means that bad (good) news weaken (strengthen) the donor's willingness to transfer resources due to low expected aid effectiveness, but increase (decrease) the donor's incentives for giving aid by generating a higher "need." The net result would then depend on which of these incentives dominates. This dilemma is inherent in the emphasis on aid selectivity based on policies and good governance. In Van de Walle's (2005: 42) rendering of the caricature:

As a common joke within the aid community goes, a rigorously applied selective strategy will result in aid only being extended to the Netherlands or

average of the donors' objective functions, with ξ as the weight accorded to W_1 .

³¹In a variant on this theme, dynamic inconsistency does not result in more overall aid but the competition for aid among recipients leads to the same weak incentives for domestic resource mobilisation.

Switzerland, given their unequaled record on governance and macropolicy. In fact the model country for the selectivity-based allocation of aid is the “poor but virtuous country”, where the presence of extensive poverty combines with a well-intentioned and legitimate government. Unfortunately, there are few such countries.

To investigate these issues, as well as to check whether the negative effects of aid-seeking persist in an environment where donors take income levels into account, it is necessary to amend the donor’s objective function so that it is concave in the recipient’s consumption. Therefore, in this section donor preferences are assumed to be³²

$$W = \ln C - \theta T \quad (15)$$

I revert to the assumption of there being only one donor, and assume that it shares the view of the recipient when it comes to the function $\eta(R; S)$. Specifically, in this section I employ the following variation on (11):

$$\eta(R; S) = \begin{cases} k, R = S = a, \\ 1, R = S = b, \\ 0, R \neq S, \end{cases} \quad (16)$$

with $k > 1$.

I endogenise domestic income by assuming that it is a function of R and S of the following form

$$Y(R; S) = \begin{cases} m, R = S = a, \\ 1, R = S = b, \\ n, R \neq S, \end{cases} \quad (17)$$

where $m > 1 > n > 0$. This function is common knowledge to donor and recipient.

As may be seen, conditional on policy aid impact and domestic income is positively correlated here. If the state of the world and policy are both a , both η and Y attain their highest levels. Correspondingly, when $R = S = b$ the actors expect both aid impact and domestic income to reach the lower, “normal” level of 1. Finally, if there is a mismatch between policy and the country’s current economic environment both η and Y are as low as possible. Note that the normalisation $\eta(a; b) = \eta(b; a) = 0$ is not completely innocuous here, as it prevents the donor from having an impact when the needs of the recipient are maximised. On the other hand it simplifies the analysis considerably and usefully rules out the possibility of a “perverse” separating equilibrium where $R(a) = b$ and $R(b) = a$ because these are the policies that maximise need. It also seems the most realistic case. For example, if policy results in low efficiency of public spending both aid impact and domestic output will be lower ceteris

³²It will become apparent that the results do not hinge on the specific formulation chosen in the sense that they will go through for any $W = V(C) - \theta T$ with $V' > 0$ and $V'' < 0$.

paribus.³³ Moreover, as argued above it is the most interesting situation to analyse as it is at the heart of the trade-offs implied by the emphasis on aid selectivity.

With this set-up, consumption in the recipient country can reach three levels. If policy and signal are not matched there is a high likelihood that the country will be in a situation where domestic income is low and aid has no impact. Denote this “minimum” level of consumption by \underline{C} . If $R = S = b$, the country ends up with its “normal” level of consumption \bar{C} . Finally, if $R = S = a$ the level of consumption will be $\overline{\bar{C}}$, which is the maximum attainable.

I start by noting that in this case there can obviously be pooling without aid. If m is sufficiently large the government will be tempted to ignore its private information when $\sigma = \beta$ and gamble on the still positive probability that $S = a$ so that choosing policy a results in a very high Y . The critical value of the “multiplier effect” of being in the best of all possible worlds is easily calculated. If $\sigma = \alpha$, the government will obviously always choose $R = a$ when no aid is forthcoming. In the second event, $E[C(a)|\beta] = E[Y(a)|\beta] = \rho n + (1 - \rho)m$ and $E[C(b)|\beta] = \rho + (1 - \rho)n$. Thus, $E[C(a)|\beta] = E[C(b)|\beta] \Leftrightarrow m = n + [\rho/(1 - \rho)](1 - n) \equiv m_0$; and for higher values of m it is rational for the government to ignore its private information when the signal indicates that the least favourable state is the most likely. The issue is then how aid shapes the policy decisions of the government.

In a separating equilibrium, the specific values of (15) are $E[W(T)|a] = \rho \ln \overline{\bar{C}}^S + (1 - \rho) \ln \underline{C} - \theta T$ and $E[W(T)|b] = \rho \ln \bar{C}^S + (1 - \rho) \ln \underline{C} - \theta T$. Taking derivatives we find that optimal aid policies are

$$\begin{aligned} \rho \frac{k}{\overline{\bar{C}}^S} - \theta &= 0 \Leftrightarrow T^S(a) = \frac{\rho}{\theta} - \frac{m}{k}; \\ \rho \frac{1}{\bar{C}^S} - \theta &= 0 \Leftrightarrow T^S(b) = \frac{\rho}{\theta} - 1. \end{aligned}$$

Naturally, these results presupposes an interior solution. In the following I assume $\frac{\rho}{\theta} > 1$ so that at least one policy generates inflows of aid, which is reasonable for an aid recipient. However, below I will demonstrate that $T^S(a) > 0$ is not necessary to have a separating equilibrium.

Note that at an interior solution to the donor’s problem $T^S(a) \gtrless T^S(b) \Leftrightarrow k \gtrless m$. Hence, I am not prejudging whether the donor prioritises need or good policies. If the gain in aid impact with correct policies from being in state a instead of b is sufficiently high relative to the rise in domestic income, the basic good news principle that we have seen repeatedly is stronger and the donor gives more aid if it observes a . If it is the other way around the need motive inherent

³³Some readers might think that emergency assistance is a counterexample. However, when need is high, even though aid might be highly productive in terms of raising welfare due to high marginal utilities of consumption, by raising the costs of delivering aid the perils of armed conflict or the destruction of infrastructure wrought by a natural disaster still reduces the impact that a given amount of foreign assistance can have on consumption.

in the donor's objective function dominates and policy b gives the recipient the greatest amount of aid. But note that in both instances $\bar{C}^S > \underline{C}^S$; consumption is not equalised across states. With the marginal cost of aid being the same, in a separating equilibrium the higher marginal impact of aid with policy a must be counterbalanced by a lower expected marginal utility. In turn, as the probability that the policy is appropriate given the underlying environment the country is facing is identical across policies in these situations consumption in the event that the signal is correct must be higher for $R = a$.

Due to $\bar{C}^S > \underline{C}^S$ (and $\rho > 0.5$), the government always opts for $R = a$ when the signal indicates that it is highly likely that $S = a$. But for the same reason it might be tempted to go for this policy when $\sigma = \beta$ too. We have $E[C(a, T^S(a)) | \beta] = \rho \underline{C} + (1 - \rho) \bar{C}^S$ and $E[C(b, T^S(b)) | \beta] = \rho \bar{C}^S + (1 - \rho) \underline{C}$. Thus, the critical condition for separation being optimal is

$$\bar{C}^S \leq \underline{C} + \left(\frac{\rho}{1 - \rho} \right) (\bar{C}^S - \underline{C})$$

This condition turns into a condition on k when the donor is at an interior solution. Then $\bar{C}^S = (\rho/\theta)k$, and so separation is the equilibrium when

$$k \leq \left(\frac{\theta}{\rho} \right) \left[n + \left(\frac{\rho}{1 - \rho} \right) \left(\frac{\rho}{\theta} - n \right) \right] \equiv \underline{k}.$$

However, if $T^S(a) \equiv 0$ $\bar{C}^S = m$. Then the critical condition is a condition on the size of m :

$$m \leq \left[n + \left(\frac{\rho}{1 - \rho} \right) \left(\frac{\rho}{\theta} - n \right) \right] \equiv \bar{m}.$$

Now consider the case where $m \leq \bar{m}$. Then, for k somewhat higher than \underline{k} , a semi-separating equilibrium exists in which sometimes $R(\beta) = a$. As before the probability that policy a is appropriate given the circumstances the recipient is in - $\pi^H(a)$ - is a decreasing function of the probability μ that the government chooses a in contradiction of its private signal, which in turn is an increasing function of k .³⁴ Higher levels of k drives up μ until it is unity and $\pi^H(a)$ equals the prior. Still higher values of $\eta(a; a)$ results in a pooling equilibrium.

Proposition 13

a) For $m \leq \bar{m}$ and $k \leq \underline{k}$, a separating equilibrium exists, i.e., $R(a) = a$ and $R(\beta) = b$. In this equilibrium $T^S(b) = \frac{\rho}{\theta} - 1$. $T^S(a) = \frac{\rho}{\theta} - \frac{m}{k}$ for $m \leq \frac{\rho}{\theta}k$ and zero otherwise.

b) For $m \leq \bar{m}$ and $k \in (\underline{k}, \bar{k})$, a semi-separating equilibrium exists in which $R(a) = a$ but $R(\beta) = a$ with probability $\mu(k) = \rho(k - \underline{k}) / [\rho k - (1 - \rho)k]$. $T^H(b) = \frac{\rho}{\theta} - 1$, whereas $T^H(a) = \frac{\pi^H(a)}{\theta} - \frac{m}{k}$.

³⁴ μ does not depend on m because the donor's policy fixes \bar{C}^H at $[\pi^H(a)/\theta]k$ and $T^H(b) = T^S(b)$, and so the reward for choosing b is independent of this parameter.

c) For $m \leq \bar{m}$ and $k \geq \bar{k}$ the equilibrium is pooling: $R(\alpha) = R(\beta) = a$. Then $T^P(a) = \frac{0.5}{\theta} - \frac{m}{k}$ and $T^P(b) = \frac{\rho}{\theta} - 1$.³⁵ For $m > \bar{m}$, there is also pooling, but $T^P(a) = 0$.

Proposition 12 sums up the results, which are illustrated in Figure 7. The latter also displays m_0 , thus highlighting the differences with the case without aid. First note for large enough m the government will forego aid altogether in the hope that the domestic economy will more than compensate for this loss of income. This was also the case without aid, so for $m > \bar{m}$ external transfers make no difference. More to the point, we are not concerned with such aid graduates here.

Secondly, observe that as $\bar{m} > m_0$ there are actually parameter configurations such that aid improves policy choice in the recipient country. For $m_0 < m \leq \bar{m}$ and $k < \bar{k}$ there is a positive probability that $R(\beta) = b$ if aid is received, whereas policy a is always chosen in the absence of such resource flows from abroad. Thus, by “rewarding” policy b (even in cases within this region where it declines to support the recipient if $R = a$) the donor provides an incentive to resist the temptation to gamble on $S = a$ that is present when there is no aid. Yet because $T(b)$ is finite, the donor’s intervention only provides a limited incentive to follow the signal when it indicates that state b is the most likely one. Too large values of either m or k make the outcome in terms of policy choice indistinguishable from the case of no aid. The country is obviously better off for $m_0 < m \leq \bar{m}$ and $k \geq \bar{k}$ with aid due to the extra resources, but the donor might want to consider whether the money could more usefully be employed in another recipient.

[Figure 7 about here]

Thirdly, we see that for $m \leq m_0$ we also get the same pattern of equilibria as in the basic good news bias model of Section 4. For $k \leq \underline{k}$ the country is on average better off by being on the list of aid recipients, even though here too there are parameter configurations such that $T^S(a) = 0$. For $k > \underline{k}$ we have the unambiguous result that aid-seeking distorts policy choice in recipient-countries. In this region the qualitative results are thus robust to the extension of the donor’s preferences to the case where recipient income matters. This is reassuring as the aid allocation literature indicates that most donors take income levels into account when allocating their aid.³⁶ Moreover, this region is probably more relevant for most recipients, which do not have a high current potential for domestic income even with appropriate policies and under the best of circumstances, and thus are not the borderline cases for graduation from aid that we just discussed.

Finally, what bearing do these results have on the principle of aid selectivity that is a pillar of the new aid regime, at least at the rhetorical level? While the issue of selectivity is perhaps most appropriately discussed in a setting with multiple recipients, the analysis performed here suggests that it is unlikely to be a panacea. First of all, there is the complication, usually ignored in policy

³⁵ $T^P(b) = \frac{\rho}{\theta} - 1$ follows by assuming $\varphi^P(b) = 0$, i.e., the out-of-equilibrium policy is assumed to be interpreted as decisive evidence that $\sigma = \beta$.

³⁶See e.g. Alesina and Dollar (2000).

discussion, that what is the correct policy for a country is state-contingent. This implies that it is hard to evaluate whether a government is actually doing what is best for the country given the circumstances it is facing. I here assume that the government is always intent on doing what is best for the country, but when policy-responsive aid is factored in this might not be what it would have done in the absence of transfers. Indeed, as repeatedly demonstrated in this paper in many situations aid distorts policy choice, but it could in practice be very hard to figure out whether that is the case. Adding more realism by introducing some form of government failure - e.g. corrupt or otherwise self-interested politicians - is likely to complicate inference even further.

Secondly, the new aid rhetoric does not address the issue of the dynamic inconsistency of aid policies. While rewards for good performance and punishment for bad performance should be properly based on local circumstances, including exogenous shocks hitting the economy, aid selectivity could play a positive role by providing incentives for governments in aid-receiving countries. However, it is clear that if donors fail to punish governments choosing policies that are not conducive to the long-run development of their countries, selectivity will not be a credible strategy. The old problem that doomed conditionality will then have resurfaced. This is likely to be to the detriment of the populations of poor countries, the caveats discussed here notwithstanding. I have only shown that given the asymmetry inherent in the aid relationship, there is a risk that transfers might have adverse side-effects on public policies in recipient-countries. This is a cost of providing aid that probably cannot be avoided, merely minimised by systematic and sustained efforts at alleviating the informational advantages of recipients through e.g. creating country-specific expertise in donor agencies.

8 Suggestive Evidence and Directions for future Research

The analysis in this paper points to the conclusion that for aid-recipients, foreign concessional funds are often of such great importance that it is rational to pay a sizeable cost to keep the money flowing. The quote on the first page illustrates that more systematic investigations find that this has been true in Tanzania. The authors of that study also notes that

The recipient should take a more strict line with the donors to make sure that aid fits in with domestic priorities, but in practice there is still a very flexible attitude to donor demands. Tanzania does not say “no“ to donors who are willing to put their money into a project, even though it may be out of line with the government’s priorities and hard to finance in the long term. Bigsten et al. (2001: 306).

These findings echo the conclusions of a previous study of aid to Tanzania:

Despite the importance of aid, [the Government of Tanzania] has never designed an explicit strategy to guide the mobilisation and administration of external resources. Implicitly, aid has been guided by the goal of self-reliance and,

in the past, the foreign policy of non-alignment. [...] The self-reliance and non-dependence principles, however, are not reflected in Tanzania's [...] development strategies. The second Five Year Plan (1969-74); the BIS (1975-95); the Perspective Plan (1980-2000); NESP (1981-82); SAP (1982-85); ERP (1986-9; and ESAP (1989-93) all sought to maximise aid receipts and were devoid of criteria for effective utilisation of aid. (Bagachwa et al. 1997: 174)

With aid-dependency being generally much higher in Africa than elsewhere, other illustrations that the mechanism highlighted in this paper is at work there are relatively easy to find. Similar observations have been made with respect to Zambia, for example:³⁷

We find that Zambia, both in the 1980s and the 1990s, fit a more general portrait of a country in which policy choices are driven by donor funding rather than domestically formulated development concerns. (Rakner et al. 2001: 583-584)

While these studies cover time periods in which explicit conditionality was at the centre of donor-recipient relations, the main point is that they show how recipients are willing to conform to donor demands even when they think that other policies would be more fruitful. It is thus likely that conditionality worked to some extent whenever countries were desperate for foreign exchange. I show that conformity might still result even if donors end the practice of bundling together money and policies in packages presented to recipients in the manner of fait accompli. The only requirements are that recipients have policy-relevant knowledge that the donors do not possess, that donors care about outcomes in poor countries, and that both of these facts are common knowledge.

However, the mechanism at work is not confined to recipients in which aid is the only source of foreign funds. In many cases, the IFIs have been in a position where their judgments could potentially influence the choices of private providers of capital.

The choice to adopt the Bank-Fund type of adjustment was not necessarily made because the Nigerian government and people had faith in the model's superiority over alternative ones. Rather, it was made principally because of the leverage exercised by the IFIs. That leverage stems from their ability to provide a basis for debt rescheduling, and therefore to provide the government with the direly needed fiscal space to operate. (Herbst and Soludo 2001: 650)

Some countries, like Kenya, have therefore played the confidence game in two dimensions:

One of the stated objectives of the government, following periods of lagging reforms, has been to regain the confidence of donor countries, both to restore the flow of aid and to win the confidence of overseas investors, who come predominantly from the aid-giving countries. (O'Brien and Ryan 2001: 510)

Thus, the analysis of Mukand (1999, 2006) is complementary to the one presented here, and it would be interesting to see what the effects of such two-dimensional signalling might be. Would it be to enlarge the space for pooling,

³⁷Also see the other African case studies in the two collections from which the quotations presented in this paper are drawn.

which is what the Kenyan case would seem to indicate? Or are there other situations in which the presence of two potential sources of funds, one with expected profits as the trigger for action and the other with poverty-reduction as the main determinant, leads to less conformity in policy choice in poor countries? I leave these interesting and important questions for future research.

9 Appendix

This appendix contains proofs of the lemmas, corollaries, and propositions stated in the main text. However, I start by describing the properties of $q(\alpha)$ and $q(\beta)$.

Lemma A1

By (3a) in the main text, $q(\alpha) = p\rho/\nu$, where $\nu = p\rho + (1-p)(1-\rho)$ is the ex ante probability that the government receives the signal α . Thus:

$$\begin{aligned}\frac{\partial q(\alpha)}{\partial p} &= \frac{\rho(1-\rho)}{\nu^2} = \frac{q(\alpha)[1-q(\alpha)]}{p(1-p)} > 0; \\ \frac{\partial^2 q(\alpha)}{\partial p^2} &= -2\frac{(2\rho-1)}{\nu^2} \frac{\partial q(\alpha)}{\partial p} < 0; \\ \text{Lim}_{p \rightarrow \frac{1}{2}} q(\alpha) &= \rho; \\ \text{Lim}_{p \rightarrow \rho} q(\alpha) &= \frac{\rho^2}{\rho^2 + (1-\rho)^2} \equiv m > \rho;\end{aligned}$$

By (3b) in the main text, we have $q(\beta) = (1-p)\rho/(1-\nu)$, where $1-\nu = p(1-\rho) + (1-p)\rho$ is the ex ante probability that $\sigma = \beta$. $q(\beta)$ has the following properties with respect to p :

$$\begin{aligned}\frac{\partial q(\beta)}{\partial p} &= -\frac{\rho(1-\rho)}{(1-\nu)^2} = -\frac{q(\beta)[1-q(\beta)]}{p(1-p)} < 0; \\ \frac{\partial^2 q(\beta)}{\partial p^2} &= -2\frac{(2\rho-1)}{(1-\nu)^2} \frac{\partial q(\beta)}{\partial p} > 0; \\ \text{Lim}_{p \rightarrow \frac{1}{2}} q(\beta) &= \rho; \\ \text{Lim}_{p \rightarrow \rho} q(\beta) &= \frac{1}{2} < \rho.\end{aligned}$$

Proof

Follows from (3a) and (3b) in the main text. The results are illustrated in Figure 1 of the main text. QED.

Proof of Lemma 1

From (3a), $1 \gtrless q(\alpha) \iff (1-p)(1-\rho) \gtrless 0$. (3a) also implies $q(\alpha) \gtrless \rho \iff p \gtrless 1-p$. From (3b), $\rho \gtrless q(\beta) \iff p \gtrless 1-p$. Using (3b) once again $q(\beta) \gtrless \frac{1}{2} \iff \rho \gtrless p$. By the Informativeness Assumption, $1 > \rho > p > \frac{1}{2}$.

Hence, the left-hand sides of all these inequalities are strictly greater than the right-hand sides, i.e., $1 > q(\alpha) > \rho > q(\beta) > \frac{1}{2}$. QED.

Proof of Proposition 1

For given T , the government's problem is $Max_R E[C(R, T) | \sigma]$. When $\sigma = \alpha$, $R = a$ yields an expected pay-off of $q(\alpha) [Y + \bar{\eta}T] + [1 - q(\alpha)] [Y + \underline{\eta}T]$, whereas $R = b$ results in $q(\alpha) [Y + \underline{\eta}T] + [1 - q(\alpha)] [Y + \bar{\eta}T]$. The former is greater than the latter if $q(\alpha) \bar{\eta} + [1 - q(\alpha)] \underline{\eta} > q(\alpha) \underline{\eta} + [1 - q(\alpha)] \bar{\eta} \iff q(\alpha) \Delta > [1 - q(\alpha)] \Delta$. By Lemma 1 and the fact that by assumption $\Delta \equiv \bar{\eta} - \underline{\eta} > 0$, this is true. Similarly, $E[C(a, T) | \beta] < E[C(b, T) | \beta] \iff q(\beta) \underline{\eta} + [1 - q(\beta)] \bar{\eta} < q(\beta) \bar{\eta} + [1 - q(\beta)] \underline{\eta} \iff [1 - q(\beta)] \Delta < q(\beta) \Delta$, which is satisfied by Lemma 1.

The expected value of the donor's objective function is $E[W] = Y + E[\eta]T - \frac{\theta}{2}T^2$, where $E[\eta] = \rho\bar{\eta} + (1 - \rho)\underline{\eta}$ reflects the donor's knowledge that the recipient will act optimally given its private information once the aid level has been fixed. Thus, only signal reliability is an issue. The first-order condition for choosing T optimally is therefore $\frac{\partial W}{\partial T} = E[\eta] - \theta T = 0$. QED.

Proof of Proposition 2

First note that the donor's problem when moving last is $Max_T E[W | R] = E[C(T) | R] - \frac{\theta}{2}T^2 = Y + E[\eta | R]T - \frac{\theta}{2}T^2$. The first derivative condition for an optimum is thus $E[\eta | R] - \theta T = 0 \iff T = E[\eta | R] / \theta$. In a separating equilibrium $\varphi(a) = 1$ and $\varphi(b) = 0$ since the donor becomes as knowledgeable as the government. That is, $\pi^S(a) = q(\alpha)$ and $\pi^S(b) = q(\beta)$. Lemma 1 then implies $T^S(a) = \frac{E[\eta | a]}{\theta} = \frac{q(\alpha)\bar{\eta} + [1 - q(\alpha)]\underline{\eta}}{\theta} > T^S(b) = \frac{E[\eta | b]}{\theta} = \frac{q(\beta)\bar{\eta} + [1 - q(\beta)]\underline{\eta}}{\theta}$.

Writing out (6a) and (6b) and simplifying yields

$$\begin{aligned} (6a)' E[\eta(a) | \alpha] T^S(a) &\geq E[\eta(b) | \alpha] T^S(b); \\ (6b)' E[\eta(b) | \beta] T^S(b) &\geq E[\eta(a) | \beta] T^S(a). \end{aligned}$$

(6a)' obviously holds as a strict inequality; α is better off correctly matching policy to signal as this strengthens both its own and the donor's assessment that aid impact is likely to be high. Hence, we only need to check whether and when (6b)' is satisfied. β faces a trade-off as mimicking α yields more aid, but lowers its own expectations of η . To investigate this trade-off, it is helpful to rewrite (6b)' in terms of β 's proportional loss (L) and gain (G) from mimicking:

$$(6b)'' L(p) \equiv \frac{E[\eta(b) | \beta]}{E[\eta(a) | \beta]} = \frac{\underline{\eta} + q(\beta) \Delta}{\bar{\eta} - q(\beta) \Delta} \geq \frac{T^S(a)}{T^S(b)} = \frac{\underline{\eta} + q(\alpha) \Delta}{\bar{\eta} + q(\beta) \Delta} \equiv G(p),$$

wherein it is noted that both L and G are functions of p through $q(\alpha)$ and $q(\beta)$.

By Lemma A1 we have

$$\begin{aligned}
\text{sign} \frac{\partial L}{\partial p} &= \text{sign} \frac{\partial q(\beta)}{\partial p} < 0; \\
\text{Lim}_{p \rightarrow \frac{1}{2}} L &= \frac{\eta + \rho \Delta}{\bar{\eta} - \rho \Delta} > 1; \\
\text{Lim}_{p \rightarrow \rho} L &= \frac{\eta + \frac{1}{2} \Delta}{\bar{\eta} - \frac{1}{2} \Delta} = 1;
\end{aligned}$$

and

$$\begin{aligned}
\frac{\partial G}{\partial p} &> 0; \\
\text{Lim}_{p \rightarrow \frac{1}{2}} G &= \frac{\eta + \rho \Delta}{\bar{\eta} + \rho \Delta} = 1; \\
\text{Lim}_{p \rightarrow \rho} G &= \frac{\eta + r \Delta}{\bar{\eta} + \frac{1}{2} \Delta} > 1.
\end{aligned}$$

Given these facts, $\exists \underline{p} \in (\frac{1}{2}, \rho)$ such that $L(p) \geq G(p) \iff p \leq \underline{p}$. QED.

Proof of Corollary 1

Follows from Proposition 2 and Lemma 1. QED.

Proof of Proposition 3

In demonstrating the existence of a semi-separating equilibrium it is convenient to allow for $p \in [\underline{p}, \bar{p}]$. It is in any case inconsequential whether a government of type β is said to play a with probability 0 when $p = \underline{p}$ and probability 1 when $p = \bar{p}$ or is said to play the pure strategies a and b , respectively.

I start by rewriting (8b) in the main text using the fact that $T^H(b) = T^S(b)$ and $T^H(a) = \frac{\eta + \pi^H(a; \mu) \Delta}{\theta}$:

$$(8b)' L(p) = \frac{E[\eta(b) | \beta]}{E[\eta(a) | \beta]} = \frac{\eta + q(\beta) \Delta}{\bar{\eta} - q(\beta) \Delta} \equiv \frac{T^H(a)}{T^H(b)} = \frac{\eta + \pi^H(a; \mu) \Delta}{\bar{\eta} + q(\beta) \Delta} \equiv G(p; \mu).$$

It is easily seen that β 's loss from mimicking α is the same as when contemplating which of the two pure strategies to choose. However, the gain is now a function of μ as the donor's generosity decreases as the extent to which β is dissembling goes up. Obviously, $G(p; 0) = G(p)$. That is, when β never mimicks α , the potential gain from doing so is the same as was used in the calculation of the critical value for p such that a separating equilibrium results. Proposition 2 thus demonstrated that $L(\underline{p}) = G(\underline{p}; 0)$, or $\mu(\underline{p}) = 0$. The other end-point condition is $L(\bar{p}) = G(\bar{p}; 1)$, or $\mu(\bar{p}) = 1$. To establish $\underline{p} < \bar{p} < \rho$, we first need to spell out the properties of $\pi^H(a; \mu)$. From (6) in the main text we can derive

$$\begin{aligned}
Lim_{\mu \rightarrow 0} \pi^H(a; \mu) &= q(\alpha); \\
Lim_{\mu \rightarrow 1} \pi^H(a; \mu) &= p; \\
\frac{\partial \pi^H(a; \mu)}{\partial \mu} &= \left[\frac{1 - \nu}{\nu + (1 - \nu)\mu} \right] \{ [1 - q(\beta)] - \pi^H(a) \} < 0;
\end{aligned}$$

and

$$\begin{aligned}
Lim_{p \rightarrow \frac{1}{2}} \pi^H(a; \mu) &= \frac{\rho + (1 - \rho)\mu}{1 + \mu} \equiv n^-(\mu) \in \left[\frac{1}{2}, \rho \right]; \\
Lim_{p \rightarrow \rho} \pi^H(a; \mu) &= \frac{\rho^2 + \rho(1 - \rho)\mu}{\rho^2 + (1 - \rho)^2 + 2\mu\rho(1 - \rho)} \equiv n^+(\mu) \in [\rho, m]; \\
\frac{\partial \pi^H(a; \mu)}{\partial p} &= \frac{\pi^H(a) [1 - \pi^H(a)]}{p(1 - p)} > 0.
\end{aligned}$$

In turn, these results imply

$$\begin{aligned}
Lim_{p \rightarrow \frac{1}{2}} G(p; \mu) &= \frac{\eta + n^-\Delta}{\eta + \rho\Delta} \leq 1; \\
Lim_{p \rightarrow \rho} G(p; \mu) &= \frac{\eta + n^+\Delta}{\eta + \frac{1}{2}\Delta} > 1; \\
sign \frac{\partial G(p; \mu)}{\partial p} &= sign \left\{ \frac{\partial \pi^H(a)}{\partial p} - G(p; \mu) \frac{\partial q(\beta)}{\partial p} \right\} > 0.
\end{aligned}$$

In combination with the properties of $L(p)$ demonstrated in the proof of Proposition 2, this means that for any $\mu \in [0, 1] \exists p(\mu) \in (\frac{1}{2}, \rho)$ such that $L(p(\mu)) \equiv G(p(\mu); \mu)$. This function is strictly monotonically increasing:

$$\frac{dp}{d\mu} = \frac{\frac{\partial G}{\partial \mu}}{\frac{\partial L}{\partial p} - \frac{\partial G}{\partial p}} > 0,$$

where the sign follows from the fact that $\frac{\partial L}{\partial p} < 0$ (c.f. proof of Proposition 2) and $sign \frac{\partial G}{\partial \mu} = sign \frac{\partial \pi^H(a)}{\partial \mu} < 0$ (as seen by inspecting (8b)'). Hence, $p(0) \equiv \underline{p} < p(1) \equiv \bar{p} < \rho$. By the Implicit Function Theorem, we may invert $p(\mu)$ to get $\mu(p)$, with $\frac{\partial \mu}{\partial p} > 0$, $\mu(\underline{p}) = 0$, and $\mu(\bar{p}) = 1$.

To complete the proof, we need to demonstrate that (8a) holds. Rewriting it, we have

$$(8a)' E[\eta(a) | \alpha] T^H(a) \geq E[\eta(b) | \alpha] T^H(b).$$

This condition is obviously strictly satisfied at \underline{p} , as it reduces to (6a)' when $\mu = 0$. By the definition of \bar{p} , $L(\bar{p}) = G(\bar{p}; 1)$. From the proof of Proposition

2, we know that $L(p) > 1$ for any $p < \rho$. Hence, $G(\bar{p}; 1) = \frac{\eta + \pi^H(a; 1)\Delta}{\eta + q(\beta)\Delta} > 1 \Leftrightarrow \pi^H(a; 1) = \bar{p} > q(\beta)$. So $T^H(a) > T^H(b)$. Not only does α increase the probability of having $\eta = \bar{\eta}$ by choosing a , it gets more aid as well. $(8a)'$ therefore holds as a strict inequality at \bar{p} too. The same logic applies to the intermediate cases. QED.

Proof of Corollary 2

By the proof of Proposition 3 we have $\pi^H(a; 0) = q(\alpha) > \rho$ and $\pi^H(a; 1) = \bar{p} < \rho$. To complete the proof I thus only need to show that $\frac{d\pi^H(a; \mu)}{d\mu} = \frac{\partial \pi^H(a; \mu)}{\partial \mu} + \frac{\partial \pi^H(a; \mu)}{\partial p} \frac{\partial \mu}{\partial p} < 0$. Doing the requisite calculations reveals that $\text{sign} \frac{d\pi^H(a; \mu)}{d\mu} = \text{sign} \frac{\partial \pi^H(a; \mu)}{\partial p} < 0$. QED.

Proof of Proposition 4

It is straightforward to prove that the strategies listed in the main text constitute a PBE. I therefore concentrate on demonstrating that candidate pooling equilibria exist for $p < \bar{p}$, but does not survive the application of the Intuitive Criterion. Suppose $\varphi^P(b) = 1$, implying $\pi^P(b) = 1 - q(\alpha)$. In this case the donor thinks that the government is of type α if it plays b so that there is for certain a mismatch between signal and policy. This is the worst potential mismatch, generating the lowest possible aid flow in response. The candidate equilibrium aid function stated in the main text, $\tilde{T}^P(R)$, reflects this fact. Proving that the Intuitive Criterion rules out such equilibria amounts to showing that deviating to b is equilibrium-dominated for α but not for β if this deviation convinces the donor of their respective types. Starting with the latter such a deviation results in an expected level of consumption of $E[C(b, T^H(b)) | \beta] = E[C(a, T^H(a)) | \beta] > E[C(a, \tilde{T}^P(a)) | \beta]$, where the equality follows from $(8b)$ and the inequality from (7) , showing that $\pi^H(a; p) > p$ for $p < \bar{p}$. As regards type α , choosing b will result in the lowest possible pay-off if the donor is convinced of its type by this signal; it will get $\tilde{T}^P(b)$ and its own assessment of expected aid impact is $[1 - q(\alpha)]\bar{\eta} + q(\alpha)\underline{\eta}$ too. In other words, $(9a)$ holds as a strict inequality and there is no way a deviation can raise expected consumption. As stated in the main text, pooling at b is not a PBE even for $\varphi(a) = 0$, as the relative loss from mimicking for α , $\frac{E[\eta(a)|\alpha]}{E[\eta(b)|\alpha]} = \frac{\eta + q(\alpha)\Delta}{\bar{\eta} - q(\alpha)\Delta}$, exceeds the relative potential gain, $\frac{T(b)}{T(a)} = \frac{\bar{\eta} - p\Delta}{\bar{\eta} - q(\beta)\Delta}$. QED.

Proof of Corollary 3

The first inequality follows from Proposition 4 and the Informativeness Assumption. The second follows from Proposition 4, as the government must be compensated for the policy distortion it performs when $\sigma = \beta$, otherwise pooling would not be a PBE. QED.

Proof of Proposition 5

The function $E[T]$ follows from working through what happens given that the state is a and b , respectively, taking into account how different strategies are chosen by the government for $\sigma = \alpha$ and $\sigma = \beta$ depending on the value of p . From Lemma A1 we know that $q(\alpha) = p\rho/\nu$ and $q(\beta) = (1 - p)\rho/(1 - \nu)$. Hence, using Proposition 2

$$\begin{aligned}
\nu T^S(a) + (1-\nu) T^S(b) &= \frac{p\rho\bar{\eta} + (1-p)(1-\rho)\underline{\eta}}{\theta} + \frac{(1-p)\rho\bar{\eta} + p(1-\rho)\underline{\eta}}{\theta} \\
&= \frac{\rho\bar{\eta} + (1-\rho)\underline{\eta}}{\theta} = T^*
\end{aligned}$$

From (6) in the main text, one can deduce that $\pi^H(a; \mu) = \frac{p[\rho+(1-\rho)\mu]}{\nu+(1-\nu)\mu}$. It follows that

$$[\nu + (1-\nu)\mu] T^H(a) + (1-\nu)(1-\mu) T^H(b) = \frac{z\bar{\eta} + (1-z)\underline{\eta}}{\theta} \leq T^*,$$

where $z \equiv \mu p + (1-\mu)\rho$. The inequality holds true as $z \in [\bar{p}, \rho]$ for $p \in [\underline{p}, \bar{p}]$. Note that the inequality is strict for $p > \underline{p}$. This also demonstrates the continuity of $E[T]$, as in a pooling equilibrium $E[T] = T^P(a) \leq T^*$, with strict inequality for $p < \rho$. QED.

Proof of Proposition 6

First note that for $p = 0.5$, $q(\alpha) = q(\beta) = \rho$ (c.f. Lemma A1). In a separating equilibrium, we then have

$$T^S(R) = \begin{cases} \frac{\rho\bar{\eta}}{\theta}, R = a; \\ \frac{\rho\underline{\eta}}{\theta}, R = b. \end{cases}$$

Using this result, one can calculate $E[C(R, T^S(R)) | \sigma]$. Separating out is the best choice for $\sigma = \alpha$, as this leads to both higher expected aid impact and more aid compared to choosing b . If the government receives the signal β , the loss and gain from mimicking are now as follows

$$\begin{aligned}
L(b) &= \frac{\rho\bar{\eta}}{(1-\rho)\bar{\eta}} = \left(\frac{\rho}{1-\rho}\right) \frac{1}{k}; \\
G(b) &= \frac{\rho\bar{\eta}}{\rho\underline{\eta}} = k.
\end{aligned}$$

Hence,

$$L(\underline{k}) \equiv G(\underline{k}) \Leftrightarrow \underline{k} = \sqrt{\frac{\rho}{1-\rho}}.$$

For $k > \underline{k}$, the government will choose a when $\sigma = \beta$ at least some of the time. This makes the donor reassess the probability of aid impact being very high with these policy. The change in the set-up does not qualitatively affect $\pi^H(a; \mu)$. Using the assumption $p = 0.5$, (7) in the main text reduces to

$$\pi^H(a; \mu) = \frac{\rho + (1-\rho)\mu}{1+\mu}.$$

The optimal aid policy is then

$$T^H(R) = \begin{cases} \frac{\pi^H(a;\mu)\bar{\eta}}{\theta}, R = a; \\ \frac{\rho\bar{\eta}}{\theta}, R = b. \end{cases},$$

and this knowledge allows us to derive the increasing function

$$\mu(k) = \frac{\rho[(1-\rho)k^2 - \rho]}{[\rho^2 - k^2(1-\rho)^2]}.$$

It may be checked that $\mu(\underline{k}) = 0$. From $\mu(\bar{k}) \equiv 1$, we find that

$$\bar{k} = \sqrt{\frac{2\rho^2}{1-\rho}} = \underline{k}\sqrt{2\rho}.$$

As the assumption $\rho > 0.5$ applies, $\bar{k} > \underline{k}$. Assuming $\varphi^P(b) = 0$ the following constitutes pooling equilibrium aid levels:

$$T^P(R) = \begin{cases} \frac{0.5\bar{\eta}}{\theta}, R = a; \\ \frac{\rho\bar{\eta}}{\theta}, R = b. \end{cases}.$$

It is straightforward to verify that for $k \geq \bar{k}$ it is then optimal for the government to pick policy a whatever the value of the signal. One can also show that the Intuitive Criterion rules out all potential pooling equilibria for $k < \bar{k}$, i.e., playing b if this convinces the donor of the government's true type is equilibrium-dominated for α but not for β . QED.

Proof of Proposition 7

When T is predetermined, maximising $E[C(R, T) | \sigma]$ is equivalent to maximising $E[\eta(R) | \sigma]$. When $\sigma = \alpha$, choosing a results in $E[\eta(a) | \alpha] = \rho\bar{\eta}$. The choice of b yields $E[\eta(b) | \alpha] = (1-\rho)\bar{\eta}$. As $\rho > 0.5$ and $\bar{\eta} > \eta$ it is optimal to follow the signal. Similarly, when $\sigma = \beta$ the two possible levels of expected aid impact are $E[\eta(a) | \beta] = (1-\rho)\bar{\eta}$ and $E[\eta(b) | \beta] = \rho\bar{\eta}$. Now a sufficiently strong bias can outweigh the lower probability of having such a large impact, making it optimal to disregard the signal in this case:

$$(1-\rho)\bar{\eta} \geq \rho\bar{\eta} \Leftrightarrow b \geq \frac{\rho}{1-\rho} \equiv \bar{k} > \underline{k}.$$

Thus, the expected level of aid impact with precommitted aid is now $0.5\rho\bar{\eta} + 0.5\rho\bar{\eta} = 0.5\rho(\bar{\eta} + \bar{\eta})$ for $k \leq \bar{k}$ and $0.5\rho\bar{\eta} + 0.5(1-\rho)\bar{\eta} = 0.5\bar{\eta}$ for $k > \bar{k}$. The new benchmark level of aid is therefore

$$T^{**} = \begin{cases} \frac{0.5\rho(\bar{\eta} + \bar{\eta})}{\theta}, k \leq \bar{k}; \\ \frac{0.5\bar{\eta}}{\theta}, k > \bar{k}. \end{cases}$$

QED.

Proof of Corollary 4

In line with the proof of Proposition 5 T^{**} is identical to the expected level of aid in the separating equilibrium. So for $k \leq \underline{k}$ $E[T] = T^{**}$.

For $k \geq \bar{k}$, the outcome of the game is a pooling equilibrium. From the proofs of propositions 6 and 7 it follows that for $k \in [\bar{k}, \bar{\bar{k}})$ $E[T] = E[T^P] = T^P(a) < T^{**}$ and for $k > \bar{\bar{k}}$ $E[T] = T^{**}$.

For $k \in (\underline{k}, \bar{k})$ the hybrid equilibrium results. We have

$$\begin{aligned} E[T^H] &= [0.5 + 0.5\mu]T^H(a) + 0.5(1 - \mu)T^H(b) \\ &= 0.5 \left\{ [\rho + (1 - \rho)\mu] \frac{\bar{\eta}}{\theta} + (1 - \mu) \frac{\rho\bar{\eta}}{\theta} \right\}. \end{aligned}$$

Checking that $E[T^H] \leq T^{**}$, with strict inequality for $k > \underline{k}$, entails evaluating $k/(1 + k)$ versus ρ . For the relevant values of k the former is always smaller than the latter. However, $E[T^H]$ is increasing in k (as may be seen, so is $E[T^P]$ and $E[T^S]$):

$$\frac{dE[T^H]}{dk} = \frac{\partial E[T^H]}{\partial k} + \frac{\partial E[T^H]}{\partial \mu} \frac{\partial \mu}{\partial k} = \frac{0.5\bar{\eta}}{\theta} [\rho + (1 - \rho)\mu] \left[\frac{\rho - (1 - \rho)k}{\rho + (1 - \rho)k} \right] > 0.$$

Thus the function $E[T]$ has a shape as exemplified in Figure 4. QED.

Proof of Proposition 8

As only the donor's bias matters for aid levels equilibrium aid functions are the same as the ones presented in the proof of Proposition 6. However, the loss and gain from choosing $R = a$ when $\sigma = \beta$ is slightly different

$$\begin{aligned} L &= \frac{\rho\bar{\eta}}{(1 - \rho)\bar{\eta}} = \frac{\rho}{1 - \rho}; \\ G(d) &= \frac{\rho\bar{\eta}}{\rho\bar{\eta}} = d. \end{aligned}$$

Hence, the government optimally follows the signal in this case as long as $d \leq \frac{\rho}{1 - \rho} \equiv \underline{d}$. However, for $d \in (\underline{d}, \bar{d})$ observing $\sigma = \beta$ induces the government to choose a with probability $\mu(d) > 0$. It is straightforward to show that the government optimally plays a when $\sigma = \alpha$. Mixing optimally after seeing β requires $E[C(b, T^H(b)) | \beta] \equiv E[C(a, T^H(a)) | \beta]$. This yields

$$L \equiv G(d) \Leftrightarrow \frac{\rho}{1 - \rho} = \frac{\pi^H(a; \mu)}{\rho} d \Leftrightarrow \mu(d) = \frac{\rho[(1 - \rho)d - \rho]}{[\rho^2 - d(1 - \rho)^2]}.$$

Once can check that $\mu(\underline{d}) = 0$. From $\mu(\bar{d}) \equiv 1$ one finds $\bar{d} = 2\frac{\rho^2}{1 - \rho} = 2\rho\underline{d} > \underline{d}$ as by assumption $\rho > 0.5$. For $d \geq \bar{d}$ there is pooling at a . One can show that if observing b induces the donor to believe that $\sigma = \alpha$, there are pooling equilibria

for $d < \bar{d}$ as well. However, all of these are ruled out by the Intuitive Criterion. QED.

Proof of Corollary 5

Follows from the proofs of propositions 6 and 8. QED.

Proof of Proposition 9

In equilibrium region I there is pooling on a . Assuming $\varphi^P(b) = 0$, optimal aid policy is therefore

$$T^P(R) = \begin{cases} \frac{0.5\bar{\eta}}{\theta}, R = a; \\ \frac{\rho\bar{\eta}}{\theta}, R = b. \end{cases} .$$

The equilibrium conditions are

$$\begin{aligned} E[C(a, T^P(a)) | \alpha] &\geq E[C(b, T^P(b)) | \alpha] \\ E[C(b, T^P(b)) | \beta] &\leq E[C(a, T^P(a)) | \beta] \end{aligned}$$

The binding constraint is obviously the second one. It reduces to $r = g/d \leq \frac{1-\rho}{2\rho^2} \equiv \underline{r}$.

In region II, the government plays a after seeing α and mixes with probability μ when seeing β . Optimal aid policy is then

$$T^H(R) = \begin{cases} \frac{\pi^H(a; \mu)\bar{\eta}}{\theta}, R = a; \\ \frac{\rho\bar{\eta}}{\theta}, R = b; \end{cases} .$$

where $\pi^H(a; \mu) = [\rho + (1 - \rho)\mu] / (1 + \mu)$. We now need $E[C(b, T^H(b)) | \beta] \equiv E[C(a, T^H(a)) | \beta]$. This implies that β plays a with probability

$$\mu(r; \beta) = \frac{\rho[(1 - \rho) - \rho r]}{\rho^2 r - (1 - \rho)^2} .$$

It is easily checked that $\mu(\underline{r}; \beta) = 1$ and $\frac{\partial \mu}{\partial r} < 0$. $\mu(\underline{r}; d, \beta) \equiv 0 \Leftrightarrow \underline{r} = \frac{1-\rho}{\rho}$. Hence, for r slightly greater than this critical value there is a separating equilibrium. Aid policy in this region is

$$T^S(R) = \begin{cases} \frac{\rho\bar{\eta}}{\theta}, R = a; \\ \frac{\rho\bar{\eta}}{\theta}, R = b. \end{cases} .$$

Verifying that $E[C(b, T^S(b)) | \beta] \geq E[C(a, T^S(a)) | \beta] \Leftrightarrow r \geq \underline{r}$ is straightforward. $E[C(a, T^S(a)) | \alpha] \geq E[C(b, T^S(b)) | \alpha]$ implies $r \leq \frac{\rho}{1-\rho} \equiv \bar{r}$. So for $r > \bar{r}$ we enter region IV, where the government follows σ if it shows β but only plays a with probability μ upon seeing α . Aid policy is then

$$T^H(R) = \begin{cases} \frac{\rho\bar{\eta}}{\theta}, R = a; \\ \frac{\pi^H(b; \mu)\bar{\eta}}{\theta}, R = b, \end{cases} .$$

with $\pi^H(b; \mu) = [\rho + (1 - \rho)(1 - \mu)] / (2 - \mu)$. From $E[C(a, T^H(a)) | \alpha] \equiv E[C(b, T^H(b)) | \alpha]$, μ can be derived:

$$\mu(r; \alpha) = \frac{2\rho^2 - (1 - \rho)r}{\rho^2 - (1 - \rho)^2 r}.$$

So $\mu(\bar{r}; \alpha) = 1$. $\mu(\bar{\bar{r}}; \alpha) \equiv 0 \Leftrightarrow \bar{\bar{r}} = \frac{2\rho^2}{1 - \rho}$. Moreover, $E[C(b, T^H(b)) | \beta] > E[C(a, T^H(a)) | \beta]$ if $r > \bar{r}$.

The final region is defined by $r > \bar{\bar{r}}$. Then the government plays b regardless of the value of σ . Assuming $\varphi^P(a) = 1$, the donor's optimal response is

$$T^P(R) = \begin{cases} \frac{\rho\bar{\eta}}{\theta}, R = a; \\ \frac{0.5\bar{\eta}}{\theta}, R = b. \end{cases}$$

Note that $T^P(a) > T^P(b)$ as $\rho > 0.5$ and $\bar{\eta} > \bar{\eta}$. I leave it to the interested reader to check that pooling is still the government's optimal choice. QED.

Proof of Corollary 6

From the proof of Proposition 9, for $r \leq \underline{r}$ the pooling equilibrium policy is a . However, $T^P(a) < T^P(b)$ as $\rho > 0.5$. For $r > \bar{\bar{r}}$, the pooling equilibrium policy b is rewarded with less aid than a , which is off the equilibrium path: $T^P(a) > T^P(b)$. QED.

Proof of Proposition 10

As noted in the main text donor j maximises $E[W_j | R] = Y + E[\eta_j | R] T - \frac{\theta}{2} T_j^2$. In a separating equilibrium, $E[\eta_1 | a] = \rho d_1$; $E[\eta_1 | b] = \rho = E[\eta_2 | a]$; whereas $E[\eta_2 | b] = \rho d_2$. Hence, we can derive the aid functions stated in part c) of Proposition 10.

Define $T^S(R) = T_1^S(R) + T_2^S(R)$. The government's pay-offs from the two policies in the case of $\sigma = \alpha$ are

$$\begin{aligned} E[C(a, T^S(a)) | \alpha] &= Y + \rho T^S(a) \\ E[C(b, T^S(b)) | \alpha] &= Y + (1 - \rho) T^S(b). \end{aligned}$$

Similarly, when $\sigma = \beta$ pay-offs are

$$\begin{aligned} E[C(a, T^S(a)) | \beta] &= Y + (1 - \rho) T^S(a) \\ E[C(b, T^S(b)) | \beta] &= Y + \rho T^S(b). \end{aligned}$$

For separation to be an equilibrium we must have $E[C(a, T^S(a)) | \alpha] \geq E[C(b, T^S(b)) | \alpha]$ and $E[C(a, T^S(a)) | \beta] \leq E[C(b, T^S(b)) | \beta]$. The first condition can be re-written as $\delta \geq (1 - \rho) / \rho \equiv \underline{\delta}$; the second as $\delta \leq \rho / (1 - \rho) \equiv \bar{\delta}$. As $\rho > 0.5$, $\underline{\delta} < \bar{\delta}$.

For $\delta < \underline{\delta}$, the government will over some range find it optimal to select both policies with strictly positive probability when $\sigma = \alpha$. In this hybrid equilibrium, $0.5 < \pi^H(b; \mu) < \rho$. Then $T_1^H(a) = T_1^S(a)$ and $T_2^H(a) = T_2^S(a)$,

but $T_1^H(b) = \pi^H(b; \mu)/\theta$ and $T_2^H(b) = \pi^H(b; \mu)d_2/\theta$. Now we must have $E[C(a, T^H(a))|\alpha] \equiv E[C(b, T^H(b))|\alpha]$, which gives us

$$\pi^H(b; \mu) = \frac{\rho^2}{1 - \rho} \delta.$$

Combining this with $\pi^H(b; \mu) = [\rho + (1 - \rho)(1 - \mu)] / (2 - \mu)$, yields the function

$$\mu(\delta; \alpha) = \frac{2\rho^2\delta - (1 - \rho)}{\rho^2\delta - (1 - \rho)^2}.$$

It is now easily checked that $\mu(\underline{\delta}; \alpha) = 1$. We find the lower bound on donors' relative bias from $\mu(\underline{\delta}; \alpha) = 0 \Leftrightarrow \underline{\delta} = (1 - \rho) / 2\rho^2$. For $\delta \leq \underline{\delta}$, there is pooling as the government chooses $R = b$ regardless of its own signal. Assuming $\varphi^P = 1$, the aid functions are $T_1^P(a) = T_1^S(a)$ and $T_2^P(a) = T_2^S(a)$, but $T_1^P(b) = 0.5/\theta$ and $T_2^H(b) = 0.5d_2/\theta$. Armed with this knowledge, it is straightforward to show that pooling constitutes a PBE.

Proving the corresponding results for $\delta \in (\bar{\delta}, \bar{\bar{\delta}})$ and $\delta \geq \bar{\bar{\delta}}$, where $\bar{\bar{\delta}} = 2\rho^2 / (1 - \rho)$, can be done by the same procedure and is left to the interested reader. QED.

Proof of Corollary 7

From the proof of Proposition 10, $\underline{\delta} < 1 < \bar{\delta}$. QED.

Proof of Proposition 11

Now allow for $\theta_1 \neq \theta_2$ and define $\tau = \theta_1/\theta_2$. Adjusting the aid functions in Proposition 10 shows that a necessary and sufficient condition for separation is

$$\frac{1 - \rho}{\rho} \leq \frac{T^S(a)}{T^S(b)} = \frac{d_1 + \tau}{1 + \tau d_2} \leq \frac{\rho}{1 - \rho} \equiv \lambda.$$

This condition might be rearranged into

$$\underline{\tau} \equiv \frac{d_1 - \lambda}{\lambda d_2 - 1} \leq \tau \leq \frac{\lambda d_1 - 1}{d_2 - \lambda} \equiv \bar{\tau}.$$

Starting at $\underline{\tau}$ and reducing τ one can trace out the probability that $R(\beta) = a$, μ . In this semi-separating equilibrium $R(\alpha) = a$, so $T^H(b) = T^S(b)$ but $T^H(a) = (d_1 + \tau)\pi^H(a; \mu)/\theta_1$. Combining the government's indifference condition for $\sigma = \beta$ with $\pi^H(a; \mu) = [\rho + (1 - \rho)\mu]$ leads to the function $\mu(\tau; \beta)$. The critical value $\underline{\tau} = (d_1 - 2\rho\lambda) / (2\rho\lambda d_2 - 1)$ is defined by $\mu(\underline{\tau}; \beta) \equiv 1$. For values of the relative cost parameter lower than this, there is pooling on a . Given the usual reasonable restriction on out-of-equilibrium beliefs, $T^P(b) = T^S(b)$ whereas $T^P(a) = (d_1 + \tau) / 2\theta_1$.

Proceeding in a similar manner allows one to deduce the results for other values of τ , i.e., semi-separation for $\tau \in (\bar{\tau}, \bar{\bar{\tau}})$ and pooling on for $\tau \geq \bar{\bar{\tau}}$, where $\bar{\bar{\tau}} = (2\rho\lambda d_1 - 1) / (d_2 - 2\rho\lambda)$. QED.

Proof of Corollary 8

Part a) follows from taking the limits of $(d_1 + \tau)/(1 + \tau d_2)$ as $\tau \rightarrow 0$ and $\tau \rightarrow \infty$. Part b) follows from the fact that $\underline{\tau} < 0$ and $\bar{\tau}$ is not defined for the values of the donors' biases given. QED.

Proof of Proposition 12

If (14) guides donors' decisions on how much aid to provide,

$$\frac{T^S(a)}{T^S(b)} = \frac{\frac{\rho d_a}{\theta_1} + \frac{\rho d_a}{\theta_2}}{\frac{\rho d_b}{\theta_1} + \frac{\rho d_b}{\theta_2}} = \frac{d_a}{d_b}$$

Note that this ratio does not depend on τ . In line with the proof of Proposition 11, this ratio must lie between $1/\lambda$ and λ in order for the equilibrium to be separating. Given the definitions of d_a and d_b this implies the following restrictions on ξ :

$$\frac{d_2 - \lambda}{\lambda d_1 - 1 + d_2 - \lambda} \leq \xi \leq \frac{\lambda d_2 - 1}{d_1 - 1 + \lambda d_2 - 1}.$$

The limit of the first ratio as $d_2 \rightarrow \infty$ is unity; the limit of the second as $d_1 \rightarrow \infty$ is zero. QED.

Proof of Proposition 13

I start with the case without aid, when $C = Y$. Then $E[C(a)|\alpha] = E[Y(a)|\alpha] = \rho m + (1 - \rho)n$ and $E[C(b)|\alpha] = \rho n + (1 - \rho)$. By assumption $\rho > 0.5$ and $m > n$. Hence, $E[C(a)|\alpha] > E[C(b)|\alpha]$ and so $R(\alpha) = a$. In the second event, $E[C(a)|\beta] = E[Y(a)|\beta] = \rho m + (1 - \rho)m$ and $E[C(b)|\beta] = \rho + (1 - \rho)n$. Thus, $E[C(a)|\beta] = E[C(b)|\beta] \Leftrightarrow m = n + [\rho/(1 - \rho)](1 - n) \equiv m_0$; for $m \leq m_0$ $R(\beta) = b$; and for $m > m_0$ $R(\beta) = a$.

In a separating equilibrium, the specific values of (15) are $E[W(T)|a] = \rho \ln \bar{C}^S + (1 - \rho) \ln \underline{C} - \theta T$ and $E[W(T)|b] = \rho \ln \bar{C}^S + (1 - \rho) \ln \underline{C} - \theta T$. Taking derivatives we find that at an interior solution optimal aid policies are

$$\begin{aligned} \rho \frac{k}{\bar{C}^S} - \theta &= 0 \Leftrightarrow T^S(a) = \frac{\rho}{\theta} - \frac{m}{k}; \\ \rho \frac{1}{\bar{C}^S} - \theta &= 0 \Leftrightarrow T^S(b) = \frac{\rho}{\theta} - 1. \end{aligned}$$

In the following I assume $\frac{\rho}{\theta} > 1$ so that $T(b) > 0$ in all equilibria. The line $T^S(a) = 0$ in Figure 7 is defined by $m = \frac{\rho}{\theta}k$. However, $T^S(a) > 0$ is not necessary for separation. When $T^S(a) > 0$, $\bar{C}^S = \frac{\rho k}{\theta}$. When $T^S(a) = 0$ $\bar{C}^S = m$. The latter case is obviously identical to the case without aid, and we then know that $R(\alpha) = a$. As $\bar{C}^S = \frac{\rho}{\theta} < \bar{C}^S$ at an interior solution and $\rho > 0.5$, the same holds in this case.

We have $E[C(a, T^S(a))|\beta] = \rho \underline{C} + (1 - \rho) \bar{C}^S$ and $E[C(b, T^S(b))|\beta] = \rho \bar{C}^S + (1 - \rho) \underline{C}$. Thus, the critical condition for separation being optimal when $\sigma = \beta$ is

$$\bar{C}^S \leq \underline{C} + \left(\frac{\rho}{1-\rho} \right) (\bar{C}^S - \underline{C})$$

At an interior solution to the donor's problem $\bar{C}^S = (\rho/\theta)k$, and so separation is the equilibrium when

$$k \leq \left(\frac{\theta}{\rho} \right) \left[n + \left(\frac{\rho}{1-\rho} \right) \left(\frac{\rho}{\theta} - n \right) \right] \equiv \underline{k}.$$

However, if $T^S(a) \equiv 0$ $\bar{C}^S = m$. Then the critical condition is a condition on the size of m :

$$m \leq \left[n + \left(\frac{\rho}{1-\rho} \right) \left(\frac{\rho}{\theta} - n \right) \right] \equiv \bar{m}.$$

When $m \leq \bar{m}$ but $k \in (\underline{k}, \bar{k})$, there is a hybrid equilibrium where the government sometimes chooses a after seeing β . In this equilibrium $T^H(b) = T^S(b)$, and so $\bar{C}^H = \bar{C}^S$. The expected value of the donor's objective function when $R = a$ is $E[W(T)|a] = \pi^H(a) \ln \bar{C}^S + [1 - \pi^H(a)] \ln \underline{C} - \theta T$. Hence, $T^H(a) = \frac{\pi^H(a)}{\theta} - \frac{m}{k}$. Using government indifference after observing β and the definition of $\pi^H(a)$ (which follows from Bayes' Rule) leads to the stated function $\mu(k)$. The second critical value of k is defined by $\mu(\bar{k}) \equiv 1$. With pooling on a for $k \geq \bar{k}$, the aid functions become those stated in the proposition (assuming $\varphi^P(b) = 0$).

One can check that for $m > \bar{m}$ choosing a regardless of its private information is the government's optimal strategy even though in this case $T^P(a) = 0$. QED.

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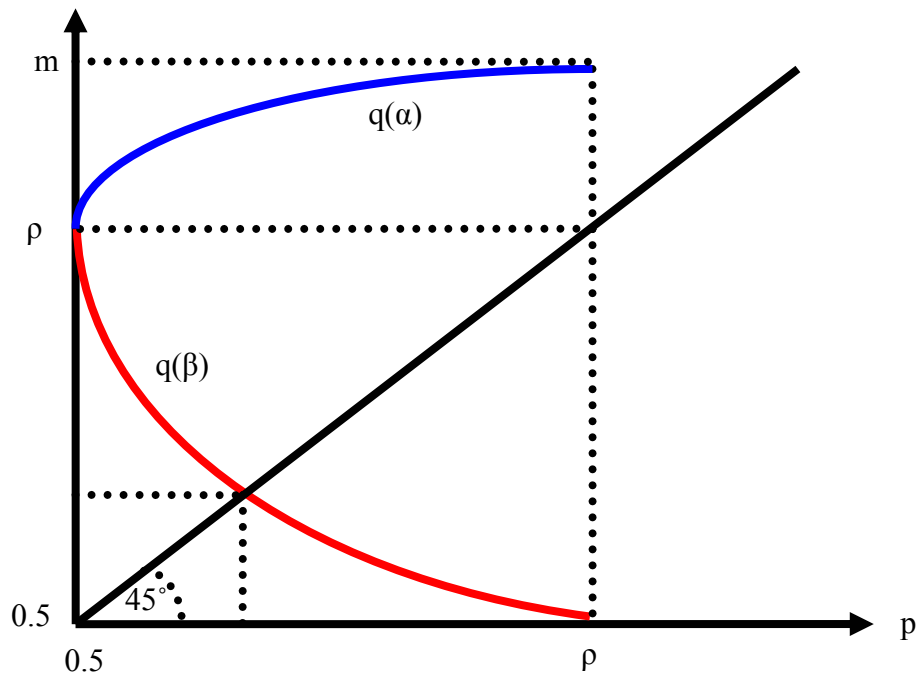


Figure 1: Posterior Probabilities that Signal Reflects State of the World

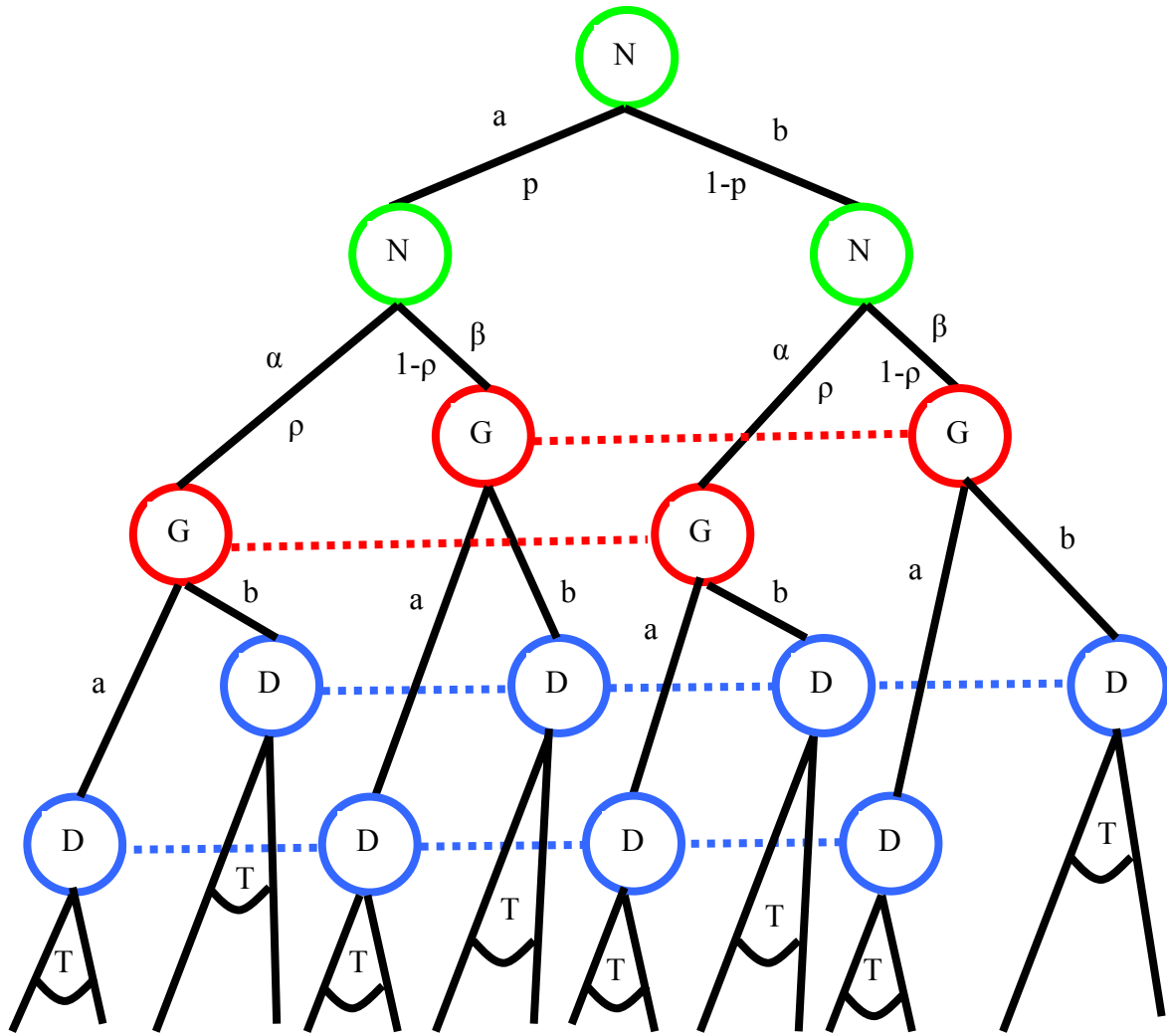


Figure 2: The Signalling Game

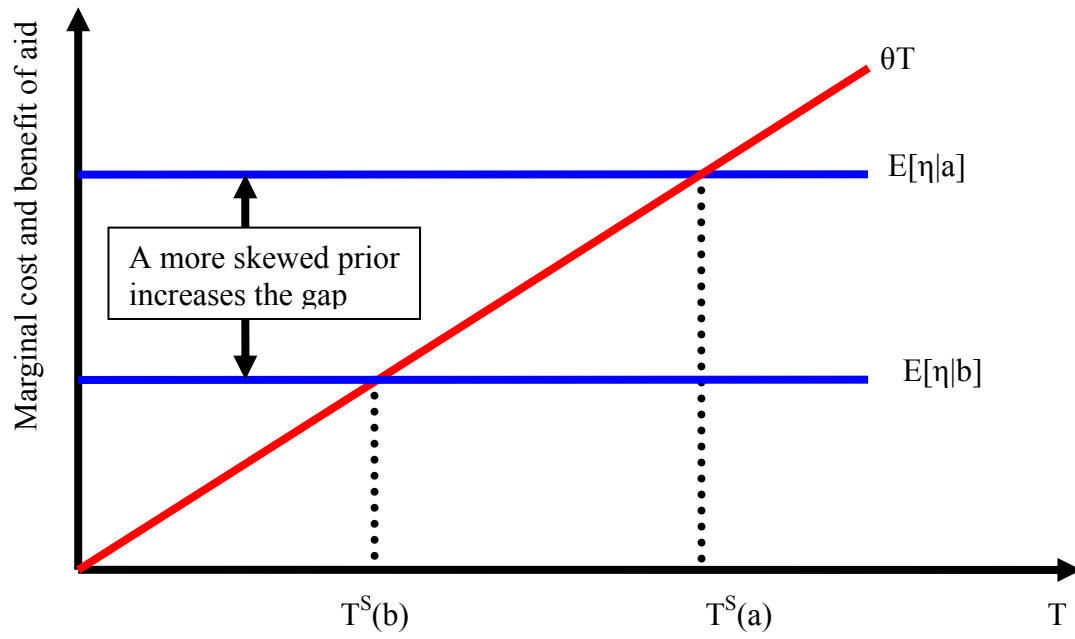


Figure 3: Separating Equilibrium Aid Levels

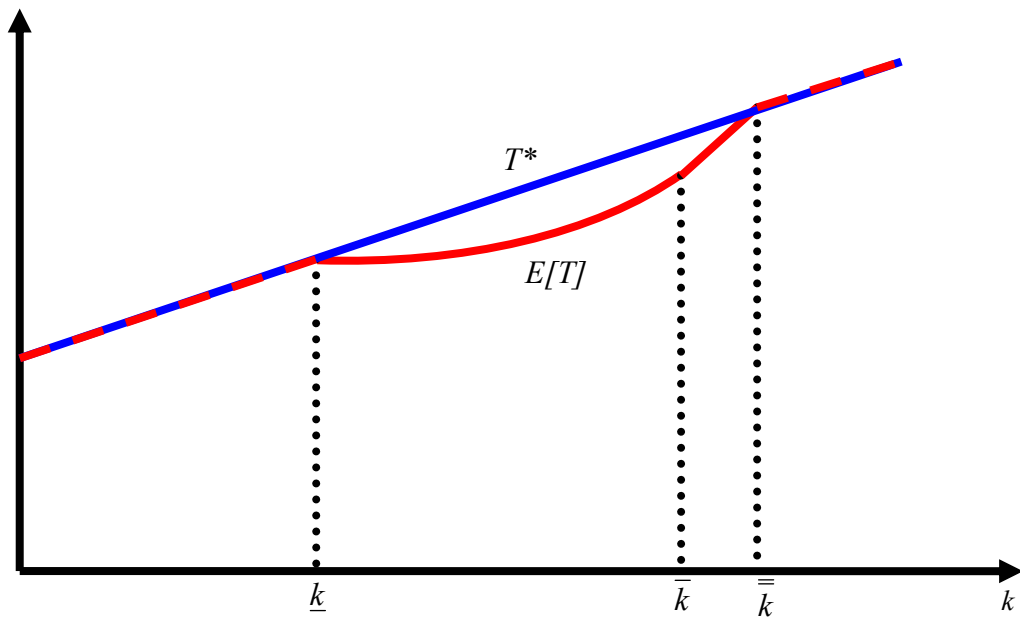


Figure 4: Ex ante Expected Aid Flows when the Good News Bias Is Operative

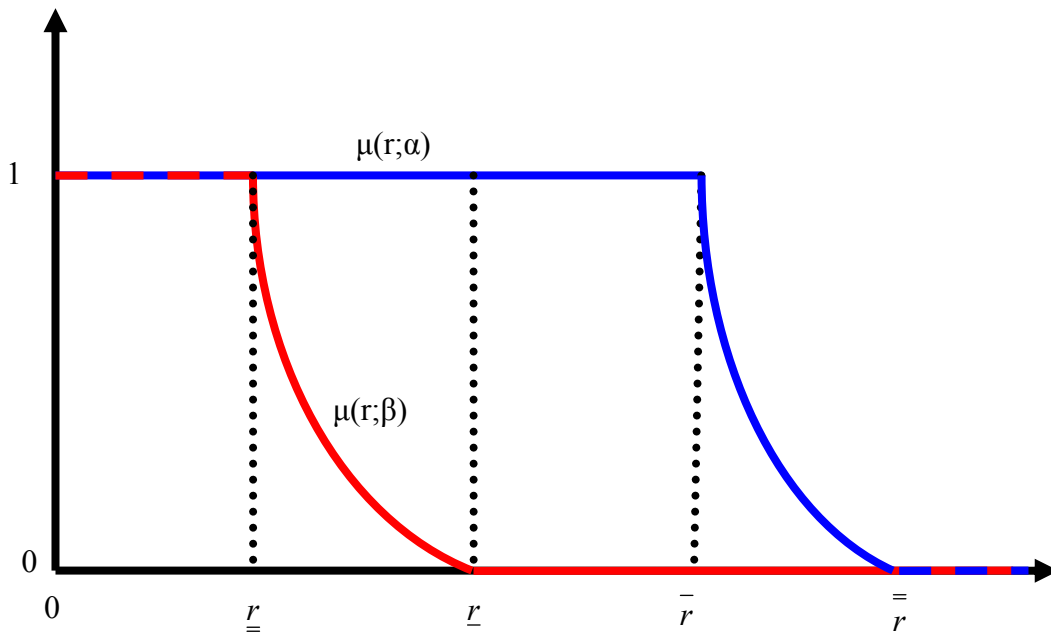


Figure 5: The Government's Strategies as Functions of the Signal and Relative Bias

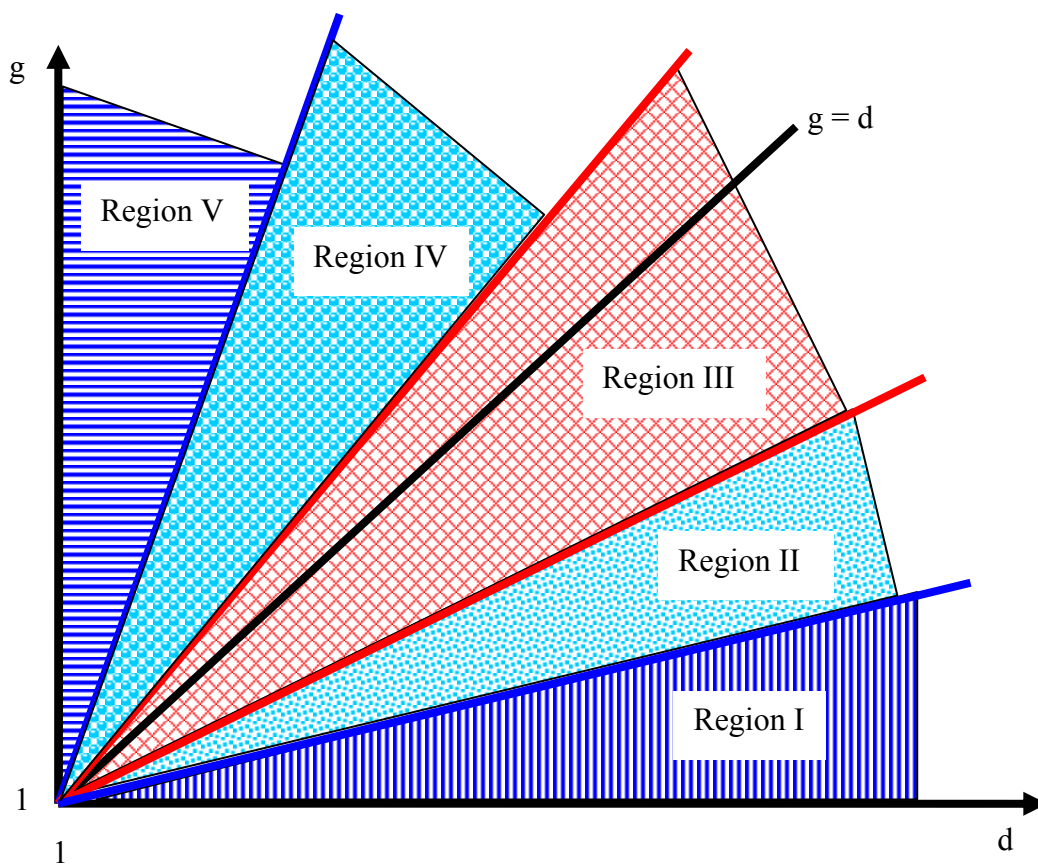


Figure 6: Equilibrium Regions as Functions of Players' Biases

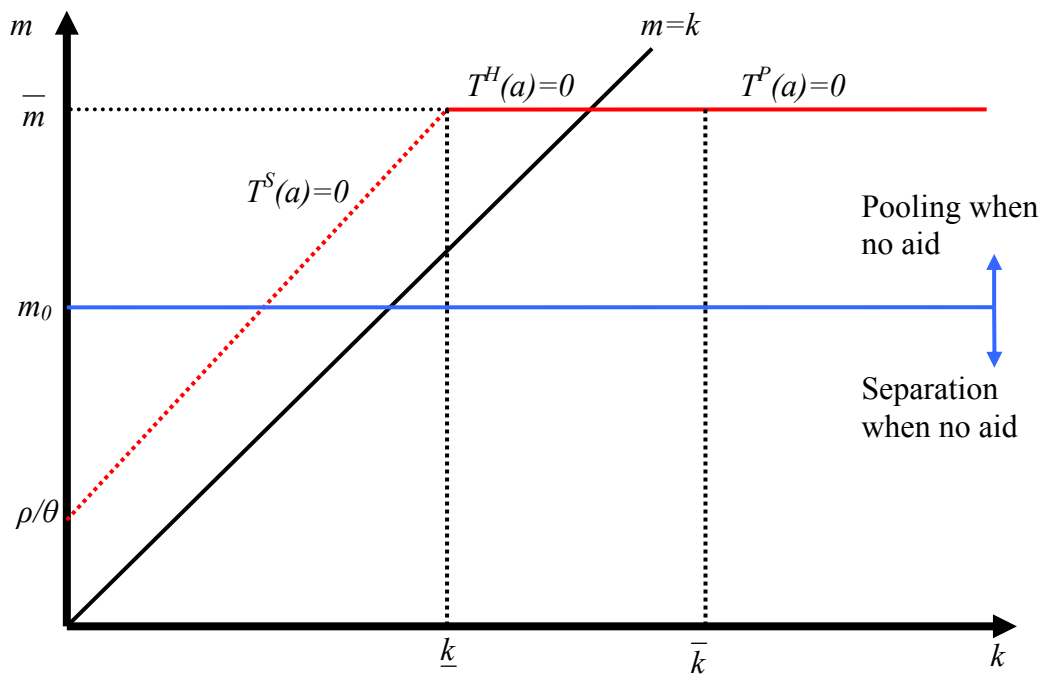


Figure 7: Equilibrium Regions with and without Aid when Donor Cares about both Need and Impact

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