

Selective Incentives and Free-Riding in the Provision of Foreign Aid: An Empirical Investigation

Martin C. Steinwand*

November 18, 2011

Abstract

The use of foreign aid for the promotion of bilateral diplomatic and economic goals has been widely criticized. However, private benefits should make it easier for donors to provide more developmentally oriented aid. This paper employs the new StratAM model to explore if selective incentives can help to alleviate the negative welfare effects of free-riding losses that are common to developmental aid. Using data on bilateral official development aid from 15 OECD donors and 96 recipient countries from 1973 to 2007, I find that selective incentives reduce free-riding losses in some cases, but not generally. Collective action problems have increased in the promotion of democratic regimes, but not with regard to good governance. On an optimistic note, welfare losses due to aid for export promotion are steadily declining.

*Department of Political Science, Stony Brook University, martin.steinwand@stonybrook.edu.

1 Introduction

A frequently criticized feature of foreign aid by advanced industrialized countries is its self-interested nature. Researchers have identified a bias of aid programs towards export promotion (Younas 2008), access to raw materials, and diplomatic and other goals (Morgenthau 1962; Lancaster 2007). In this paper, I investigate an important systematic, yet underappreciated corollary of this criticism. The ability to satisfy self-interested goals provides donors with selective incentives to provide more developmental aid. This is because selective incentives reduce the marginal costs of providing aid of all forms. In an anarchic environment in which developmental aid is subject to collective action problems, this translates into higher equilibrium allocations for the donor who has the lowest marginal costs of providing developmental aid. At the same time, these strategic interactions increase asymmetries in aid provision and free-riding on part of others. It is an important empirical questions whether the selective incentives are sufficient to make up for greater free-riding, or if increased welfare losses result.

I seek to shed light on this question using the newly developed StratAM model (Steinwand 2011). The model allows the researcher to account for free-riding dynamics that affect aid with public good characteristics, while stripping away those parts of aid provided primarily for self-interested purposes. And it provides an estimator of free-riding behavior, as well as a platform to systematically test the sources of free-riding. The StratAM modeling approach therefore provides a uniquely well suited setup to disentangle the question of selective incentives in the provision of foreign aid.

The premise from which my inquiry starts is that donors do not coordinate their aid programs. While there is little academic work on this topic,¹ there is a virtual consensus in the debate on donor proliferation and fragmentation that there is too little coordination

¹One exception is Steinwand (2010).

(Easterly 2007; Frot and Santiso 2010). In this uncoordinated and non-hierarchical international environment, developmental policies exhibit classic public goods properties. Any donor can benefit if others do the work, and there is no rivalry in enjoying the work of others. Recognizing this, observers as far back as Olson and Zeckhauser (1966), have made a straight-forward prediction. Donors will seek to free-ride on each others contributions, and therefore under-provide aid.² I argue that donor self-interest can help to temper this tendency to free-ride.

In the following, I use data on 15 OECD donor countries, and 96 recipients of foreign aid in three time periods, 1983-87, 1993-97, and 2003-07. The results show that over the last 30 years, the shared diplomatic goals of donors shifted from cold war support of allies to concerns for democracy. This positive trend was associated with an increase in free-riding losses. During the same period, export promotion lost its role as driver of aid allocations. The welfare effects of this decline were overwhelmingly positive, as selective incentives from exports were insufficient to compensate for large free-riding losses. Competing diplomatic goals seem to have provided no selective incentives for increased aid provision, and indicators of good governance did not influence aid in the expected way.

2 Theoretical Considerations

Aid and Free-Riding

For a long time, policy practitioners and academic researchers alike have recognized that collective action problems can impede the effective delivery of developmental foreign aid. This has resulted in important work that has raised awareness of the importance of situational factors for aid policy. However, sources of free-riding behavior have remained largely

²The historic record shows that donors have consistently lacked behind their promises in providing aid. The often mentioned but never met UN target of 0.7 percent of donor GDP is the most prominent example of this.

unexplored. Existing work can be divided into two principal lines of investigation.

First, Elinor Ostrom has drawn on the new economics of institutions to explore institutional solutions to common pool resource problems (e.g. Ostrom *et al.* 1993). This research looks into the role of asymmetric information, principal agent problems and other factors that structure the interactions between aid providers and recipient governments (Gibson *et al.* 2005). Interactions between donor governments remain unexplored.

Second, the recent vivid debate on donor fragmentation deals with the lack of coordination between donors, but only for the implementation of policy, and not with regard to aid allocations. With increasing numbers of aid providers, administrative requirements tend to increase as well, overburdening local authorities (Easterly 2007; Frot and Santiso 2010). The result is decreased economic growth (Djankov *et al.* 2009), poor institutional performance (Knack and Rahman 2007) and increased corruption (Djankov *et al.* 2009). The collective action problem in program implementation stems from negative externalities. Critics call for increased coordination between donors to help to overcome these problems.

Neither literature addresses free-riding losses that arise out of positive externalities of aid provision. This is surprising since free-riding incentives arguably work against the forces leading to donor proliferation, such as bureaucratic and organizational self-interest, and thus should be of policy interest to scholars of donor fragmentation.

Perhaps the lack of research on the conditions that lead to free-riding suggests that free-riding losses are not important in the provision of aid? I argue that there are powerful forces in the aid system that give donors incentives to free-ride. These incentives stem from the scarcity of resources, in combination with concerns for development outcomes. Simply put, giving aid is costly. While it is plausible that bureaucratic self-interest drives aid agencies to expand their activities and push for larger aid commitments (Vaubel 1986), the role of providing expertise (Martens 2005) and the professionalization of policy making (Lancaster 2007) leads to a stronger development focus of aid agencies. At the same time, there is ample

evidence that aid agencies are constrained by actors higher up in the government hierarchy, and by inter-agency rivalry.

In the US context for example, larger outlines of aid policy are typically drawn at the cabinet level, while their execution bypasses with increasing frequency USAID. Historically, aid has been an important diplomatic tool for the State Department (Lancaster 2007, p. 101). More recently, the creation of the Millennium Challenge Cooperation, and the large share of aid administered by the Ministry of Defense create budgetary pressures on USAID. In Japan and Germany, various aspects of aid provision are permanently delegated to competing agencies (Lancaster 2007, p. 113 f., 187 f.), which in turn ensures that these agencies vie for resources. Finally, aid agencies are perennially at a disadvantage when competing against domestic demands on government spending since foreign aid has no natural domestic constituency.

The combination of a strong developmental focus and competition for scarce resources means that aid agencies have to concentrate their efforts. They focus their efforts on some countries, and free-ride on the work of others in other countries. Anecdotal evidence of this abounds. Looking at aid patterns, the US usually defers to French and British leadership in Africa, while it exercise similar undisputed leadership in Central and South America. Domestically, politicians involved with aid policy frequently call for concentrating aid efforts.³

Variation in the concentration of aid efforts could reflect mere differences in preferences. In contrast, I argue that the root of heterogenous aid giving lies in differentials in the cost/benefit analysis of donors. Donors face varying marginal costs of providing aid. For example, there is evidence that former colonial ties make aid provision less costly in political terms. Sources of this are notions of historic responsibility and support for co-nationals that remain settled in the former colony.⁴ The same cost reduction logic applies to aid that

³As recent example, in April 2011 US Senator Richard Lugar called to concentrate aid in “those areas that we do best”, reasoning “the United States is just one actor among many countries and organizations that provide . . . development assistance.” Source: Press Release 4/13/2011.

⁴A very instructive example is the role that Germany played as major donor after the independence of

further economic goals of the donor.

Olson and Zeckhauser (1966) show that differentials in marginal costs of providing a public good lead to asymmetric contributions. Low cost donors contribute more, while high cost donors free-ride on these contributions. This asymmetry arises because low cost donors balance the marginal costs of providing the public good and the marginal benefits they receive at higher equilibrium levels than low cost donors. The asymmetry gets reinforced by strategic interactions. Because high cost donors benefit from the greater contributions of low cost donors, they adjust their own contribution levels downward – free-riding losses increase. At the same time, high cost donors compensate for some or all of these losses by further increasing their own contributions.

The question if the resulting aid allocation is efficient from a welfare perspective depends on the degree of strategic interconnections between donors, as well as on the degree of differentials in marginal costs. Efficiency in this context refers to total aid allocations that donors would make in the absence of strategic interactions. If the net sum of strategic upward adjustments by the low cost donor and downward adjustments by the high cost donor leads to aid allocations equal or greater than the this reference quantity, there are no welfare losses. If the net sum is less than the reference allocation, aid is undersupplied.

Existing empirical work, while sparse, supports that free-riding matters in the provision of foreign aid. Steinwand (2011) provides evidence for free-riding effects in his discussion of the StratAM model. Mascarenhas and Sandler (2006) present reduced form donor reaction functions for the provision of aggregate development aid under a public goods and a cooperative Lindahl scenario. They estimate which better fits the empirical record of total annual bilateral and multilateral aid. They find that aid is given in a non-cooperative fashion, i.e. is subject to free-riding behavior, and that there is no evidence for cooperation.⁵

Namibia (Oldhaver 1997).

⁵However, there are some methodological issues. The authors use a 2SLS approach to estimation, which is ill-suited to correct for the simultaneity bias that arises from simultaneous decision making typical for

While these early findings are important, my study goes beyond drawing an aggregate picture. The StratAM model allows us to distinguish between aid that goes towards public goods purposes and aid that generates private benefits. In addition, it allows for the systematic study of the effect of recipient country and dyadic donor-recipient features on free-riding behavior. In order to generate testable hypotheses for these features, I next review the literature on aid allocation. The task is to evaluate what implications the drivers of foreign aid provision have for free-riding behavior.

Motivations for Giving Aid

Motives for giving aid fall into three broad categories, diplomatic-strategic purposes, commercial interests, and genuine development concerns. Historically, foreign aid was first used as an instrument of foreign policy (Morgenthau 1962; Lancaster 2007). In the US case, for example, aid has been used for primarily diplomatic purposes in Israel, Egypt, and other countries of the Middle East, Cambodia, the Philippines, and El Salvador, Nicaragua, and Honduras (Lancaster 2007, p. 79). Motives for support ranged from fundamental strategic goals in the Middle East, over concerns about left-leaning popular movements in Central America, the need to secure support for military bases in South-East Asia, to post-conflict reconstruction in Cambodia, and starting in the 1990s, the former Yugoslavia and again Central America. In contrast, early Japanese and (then) West-German aid was aimed to reestablish cordial diplomatic relations with their respective neighbors. Later on, these countries, as well as other important OECD donors, contributed to overarching Western strategic goals, such as stability in the middle east.

Very different motives drive the aid of France to its former colonies. There is little dispute that from its inception, French aid was overtly diplomatic in purpose and designed to maintain a political sphere of influence in Sub-Saharan Africa. This resulted in personalistic strategic interdependence (Anselin 1988; Franzese and Hays 2008). The StratAM model avoids this pitfall.

ties that beyond political purposes also frequently served to benefit French industries through non-competitive bidding, and aid- financed development projects (Lancaster 2007, p. 154). Serious organizational reform was only tried in 1998. However, the new structures appear unsuccessful in isolating diplomatic influence on French aid decisions (Lancaster 2007, p. 159), a fact that is underlined by the largely unchanged composition of French aid in the post-Cold War period (Quinn and Simon 2006; Gabas 2005).

Similar to the French case, British aid developed out of the country's colonial experience. Unlike France though, Britain did not use these historic relationships to satisfy global political ambitions. Instead, successive governments emphasized Britain's moral obligation for the development of its former dependencies. Under Margaret Thatcher, the government announced it would change aid practices to pay more attention to Britain's commercial interests. But there was little following through in terms of policy (Cumming 2001, p. 90).

What do these examples imply for free-riding? Predictions depend on the context of donor interests. Similar to developmentally oriented aid, financial support that furthers shared diplomatic goals creates a public good. Since our empirical analysis taps into the sources of free-riding in the provision of aid with public good characteristics, shared diplomatic goals should be consequential. During the cold war, diplomatic objectives ruled supreme, and western allies frequently shared strategic goals. Accordingly, this should result in free-riding in the provision of public-goods oriented foreign aid, as summarized in hypothesis 1a.

Hypothesis 1a: Aid for shared diplomatic purposes leads to increased free-riding.

Conversely, diplomatic aid that furthers self-interested goals will not result in collective action problems. However, as I have argued above, this type of aid provides selective incentives. It therefore should serve to lower the marginal costs of providing developmental aid. As a result, we should expect that the presence of self-interested diplomatic goals has

positive spill-ins, and leads to a reduction of free-riding behavior on part of the benefiting donor. This leads to hypothesis 1b.

Hypothesis 1b: Aid for diplomatic purposes that are not shared leads to decreased free-riding on part of the benefiting donor. It increases free-riding by other donors.

If the net effects of these strategic adjustments are positive, selective incentives are beneficial for a recipient country, but not otherwise.

The second well-established historic motive for giving aid are the promotion of commercial interests. Historically, both Japan and Germany have assisted their export driven economic recoveries after World War II with commercially oriented aid policies. In Germany, despite early professionalization of aid practices through the creation of a fully dedicated ministry of development (Bundesministerium für Wirtschaftliche Zusammenarbeit, BMZ), a focus on infrastructure projects remained an important facet of aid policies throughout the 1970s and 80s.

In Japan, the oil shocks together with agricultural shortages caused by a US export embargo on soybeans lead to a reorientation of aid towards securing access to raw materials. For example, Japan began to undertake aid financed infrastructure projects in Arab oil producing countries and in Brazil (Lancaster 2007, p. 116 f.). On the other hand, in the 1980s Japan significantly reduced its tying practices that required recipient countries to spend aid on Japanese goods and services (Lancaster 2007; Tuman *et al.* 2009, p. 120). Still, Japanese aid practices traditionally have put an emphasis of infrastructure and equipment purchases. This also did not change after new policy fields such as environmental aid gained prominence. Overall, the enduring combination of regional political goals, concerns about access to raw materials, and a mode of aid giving that at least potentially benefits Japanese industries makes the Japanese aid program the most commercially oriented of all five major Western donors.

Commercial aid helps to enhance the competitive position of a donor's industries and service providers. Similar to the logic of aid for private diplomatic purposes, this should serve as selective incentive to give more developmentally oriented aid as well. Accordingly, a donor that benefits commercially from providing aid should reduce its free-riding behavior. Other donors do not have the same economic benefit, and will increase their free-riding behavior. We summarize this as hypothesis 2.

Hypothesis 2: Aid for commercial purposes leads to decreased free-riding on part of the benefiting donor. It increases free-riding by other donors.

As in the case of competing diplomatic goals, the net effect of these strategic adjustments determines whether commercial selective incentives are welfare improving or not.

Finally, the third major motive for aid provision are genuine developmental and humanitarian concerns. Earnest attempts at affecting developmental progress should not be discounted, as donors have been grappling with finding best practices to affect economic change in recipient countries. A central hallmark of the development-oriented discourse that arose during the post-cold war years is its emphasis on 'good governance' and state capacity. Concrete expressions of this trend are for example the creation of the Millennium Challenge Corporation in the US, and the complete barring of aid tying in British aid practice. Serving the same goal are efforts to integrate aid flows as part of the recipient government's budgeting process, thus increasing aid program 'ownership'. On the academic side, the emphasis on state capacity found underpinnings most famously with the controversial work of Burnside and Dollar (2000). The authors found that aid fosters economic growth only in the presence of good political institutions.

Keeping in line with the spirit of policy practice and work, what are the implications

for free-riding behavior of donors? The public good characteristics of developmental aid arise from the fact that no donor can be excluded from enjoying the benefits of economic success. This free-riding dynamic should increase as aid becomes more effective. Thus, we expect that if state capacity is high and political institutions are good, donors are more likely to free-ride in the provision of developmental aid. We summarize this expectation in 3.

Hypothesis 3: Aid to countries with ‘good governance’ is subject to increased free-riding.

It is clear from the historic record that donor motivations for giving aid change over time. So does free-riding behavior. Major breaks in how donors have delivered aid are easily identified. Until the end of the Cold War, aid policies frequently had to defer to the imperatives of the confrontation between East and West. There is manifold evidence for the geo-strategic use of aid for all major Western donors, both in anecdotal accounts (e.g. Lancaster 2000) and quantitative work (Schraeder *et al.* 1998).

The sudden end of this overarching paradigm in the early 1990s led to a re-orientation of development policy. New policy goals included the promotion of good governance (Santiso 2001; Dreher 2004), as well as early conflict prevention (François and Sud 2006; Goldstone *et al.* 2010). With the rise of concerns about international terrorism after the 9/11 attacks, aid policies have shifted again. Efforts to bolster regimes that otherwise could serve as safe haven for terrorists had a large influence on US aid policy (Boutton and Carter 2010; Fleck and Kilby 2010). Anecdotal evidence shows that security concerns have had similar effects on aid policies of other Western donors (Schukraft 2007; Müller-Brandeck-Bocquet and Gieg 2007).

What implications for free-riding follow from such tectonic shifts in aid policies? Diplomatic goals should have influenced free-riding more during the Cold War, and perhaps again after 9/11. During the 1990s and 2000s aid became more developmentally oriented. Good

governance indicators should therefore matter more in these latter time periods. On the other hand, this trend suggests that economic donor self-interest should have taken increasingly a backseat in aid allocation decisions.

Model and Data

The StratAM model is a statistical version of a game-theoretic model of public-goods provision (Steinwand 2011). The resulting estimator preserves the structure of strategic interactions between aid providers.

In order to make informed specification choices, we need to briefly review the structure of the model. The full model can be written as

$$\mathbf{Y} = -\frac{1}{1 + \exp(\mathbf{Z}\gamma)}\mathbf{W}\mathbf{Y} + \left(1 - \frac{1}{1 + \exp(\mathbf{Z}\gamma)}\right)\mathbf{M} + \left(1 - 2\frac{1}{1 + \exp(\mathbf{Z}\gamma)}\right)\mathbf{L} + \mathbf{e}. \quad (1)$$

The dependent variable \mathbf{Y} are aid allocations from a set of donor countries to a specific recipient country. Strategic interactions that give rise to free-riding dynamics are captured in the first term of the right-hand side. Here, the dependent variable enters again as endogenous variable, weighted by matrix $\mathbf{W}_{n \times n}$. This matrix is formed from the ratio of public good weights b_j/b_i , indexed at i, j , and with zeros on the diagonal. Each public good weight b_i captures the share of donor i 's aid that creates positive spill-ins for other donors, while the remainder, $1 - b_i$, only furthers the donor's private interests.

The ratio of public good weights b_i and b_j fixes the strategic structure of the game. If for donors i and j the same share of aid goes towards development (b_i, b_j equal to one), they influence each other equally in providing aid. If, say, i 's aid is more developmentally oriented than j 's, the ratio b_i/b_j is less than one. Thus i faces less temptation to free-ride on j 's contribution. On the other hand, if j 's aid is relatively more development oriented (b_i/b_j greater than one), i will free-ride more on j 's contribution.

The strength of free-riding effects on aid provision is captured as $-\frac{1}{1+\exp \mathbf{Z}\gamma} = -\rho$. This is similar to the spatial parameter ρ , familiar from standard spatial setups such as the spatial autoregressive model (SAR). However, the StratAM setup accommodates covariates $\mathbf{Z}\gamma$ that allow us to directly model and systematically test the sources of variation in free-riding behavior. An increase in $\mathbf{Z}\gamma$ indicates greater taste for public goods. This in turn reduces ρ and leads to less free-riding.

The second term on the right-hand side of (1) captures endowment effects. The individual elements of vector $\mathbf{M}_{n \times 1}$ represent the money that each donor government can either allocate for developmental aid or spend on other purposes. These endowments are weighted with the donor's public good weights, resulting in elements m_i/b_i .

The term shows that a donor wants to give more aid as its endowment increases. This effect declines as b_i grows larger, and increases with the donor's relative taste for development (smaller ρ). Thus, stronger development orientation leads a donor to provide more aid, other things being equal.

Finally, the third and last term on the right-hand side of (1) adjusts the overall level of equilibrium spending. It reflects each donor's relative taste for development versus private good consumption. Its makeup is mainly an artefact of the functional form of the utility function from which the StratAM model is derived. The vector $\mathbf{L}_{n \times 1}$ contains a constant for each donor, based on the public good weights, $1/b_i$. The term increases the level of public good provision if donor i more heavily values development versus private good consumption ($\rho < .5$) and lowers provision levels in the opposite scenario.

With all elements of the StratAM model in place, we can now discuss specification choices. I start the coding with the public good weights b_i . Recall that these weights capture the share of aid that goes towards creation of a public good. I use the tying ration of aid to measure this. Tying is a type of conditionality that requires recipient countries to spend aid on goods and services from the donor country. Tied aid therefore generates private benefits

for the donor. On a broad level, aid that is channeled back benefits the donor's economy as a whole. More narrowly, since this is bound to benefit some companies and service providers more than others, there is great potential for political rents to the donor government.

Unfortunately, tying rates are not a perfect measure of the public good content of aid. Even if aid is tied, it can go towards projects that ultimately further development and therefore have public good properties.⁶ However, there is a consensus that aid tying reduce the development effectiveness of aid policies (Jepma 1991; World Bank 1998). Furthermore, the private gains donors get from tying aid will monotonically increase with the tying rate. In practical terms, tying ratios can be easily computed from using the aid allocation data from the OECD Creditor Reporting System (CRS, OECD 2008).⁷ One major limitation of this is that the US stopped reporting aid tying status to the OECD in the early 1990s. The last data that appear reliable are from 1991. I therefore only can include the US into the analysis for the first time period, 1983-87, and drop it for the remaining periods. Estimation results for the 1980s do not substantively change if I rerun the analysis without the US. This indicates that we can put some trust into the analysis without US data, despite the important role the US plays as donor.

Table 1 lists public good weights based on tying status for the five largest OECD donors and one Scandinavian country. Sweden has higher untying rates than other countries. This is in line with the well-established argument that Scandinavian aid policies are less self-interested than those of other OECD donors. Overall, tying practices decrease for latter time periods. This matches the narrative of increasingly developmentally oriented aid practices.

The next step in specifying the StratAM model is to find donor endowments m_i . To be able to abstract away from differences in domestic institutions and political situations, I use total aid commitments per donor and year. This variable measures the overall ability of a

⁶As example, consider an infrastructure project that is bound to be executed by companies of the donor country.

⁷The exception being US data, discussed in more detail below.

Table 1: Public Good Weights b , % untied

<i>Donor</i>	1983-87	1993-97	2003-07
France	0.41	0.84	0.94
Germany	0.87	0.91	0.89
Japan	0.54	1.00	0.95
Sweden	0.85	0.99	0.96
USA	0.15	–	–
UK	0.80	0.97	1.00

donor government to spend on developmental and other types of aid.

The dependent variable is total net Official Development Assistance (ODA) flows between bilateral donors and all countries that have received ODA in the covered time periods (OECD 2009). The time periods are 1983-87, 1993-97, and 2003-07. I choose them to represent aid practice during the last peak of cold war tension in the 1980s, the period of reorientation during the 1990s, and current aid practice in the decade after the adoption of the Millennium Development Goals and before the background of efforts to stem international terrorism.

I do not normalize the aid allocation variable by donor or recipient country characteristics. Strategic interactions between donors arise out of positive externalities of aid provision. These externalities are a direct function of the actual size of aid flows, and directly enter donors' utility functions. Donor effort, for example measured by dividing aid flows by donor GDP, does not influence the size of these externalities. Normalizing aid by recipient country GDP or population size captures aid intensity. This serves to ensure comparability between recipient countries if we are interested in recipient country level effects like change in developmental indicators or economic growth. In contrast, absolute flow size matters when comparing donor interactions, since the growth of donors' utility from public goods decelerates as aid flows increase. I also do not take the log of aid flows, for two related reasons. First, the theoretically informed basis of the StratAM model already ensures that large aid flows are discounted since they produce declining returns in donor utility. Second, the non-

linear nature of the StratAM model means that arbitrary transformations of the data can be amplified in ways that are unforeseen and hard to interpret.

Next, we need to find variables that correspond to the different motivations for providing aid from hypotheses 1 to 3. I begin with aid for diplomatic purposes. We have to distinguish between shared diplomatic goals, and those that only matter to individual donor countries. As variables that measure shared diplomatic interests I use regime type, share of Muslim population and dummies for Egypt and Israel. I expect that these variables lead to increases in free-riding behavior because of the public goods nature of the pursued goals.

Regime type did matter little for diplomatic relations during the cold war. However, in the 1990s support for democracy became official policy in most donor countries. As measure of democracy I use the Freedom House political rights index (Freedom House 2010). While the index has been criticized for being ideologically biased and beholden towards US interests (Herman and Chomsky 1988; Giannone 2010), this makes it a good measure to capture shared western diplomatic interests. Freedom house also provides a wider coverage of aid recipient countries than for example the Polity IV data (Marshall *et al.* 2010).

The dummies for Egypt and Israel stand in for the central role the two countries have played since the Camp Davis accords for US policy but also the larger Western approach towards stability in the Middle East. Arguably though, their importance has decreased after the end of the cold war. Finally, share of Muslim population should be indicative of efforts to win over hearts and minds, as well as deter the creation of safe havens for terrorists, in the struggle against radical islamic terrorism in the 2000s. This rationale does not apply to earlier time periods.⁸

Next, I need variables that measure diplomatic goals that are not shared between donors. I use the joint voting record in the UN general assembly and a dummy variable for former

⁸Since population shares are relatively stable over time, I use the year 1995. The data is from Fearon and Laitin (2003). Missing data was added from the World Christian Encyclopedia (Barrett *et al.* 2001) and the State Department's Annual Report on International Religious Freedoms (Department of State 2001).

colonies. There is strong evidence that countries that vote alongside western benefactors in the UN general assembly are rewarded with more aid (Carter and Stone 2010; Stone 2004; Oatley and Yackee 2004; Barro and Lee 2005). I code the variable as annual share of joint voting behavior for each pair of recipient country and donor.⁹ The former colony dummy taps into remaining historic ties between former colonizer and colony. As mentioned above, historically forged relationships between former colony and donor country reduce the costs of providing aid because of a sense of moral obligation and continuing personalistic ties to settler populations.

Since both, UN voting and historic colonial ties serve as selective incentives, I expect that the variables lead to higher aid allocations and less free-riding on part of the benefiting donor. At the same time, other donors should reduce their aid engagements with increasing free-riding losses.

We turn to economic motives for providing aid. I look at trade data to measure economic interests. There is evidence that donors give more aid to countries with which they trade (Berthélemy 2006; Berthélemy and Tichit 2004). This is at least partly driven by export promotion (Younas 2008). Accordingly, I code total annual exports from each donor to each recipient country.¹⁰

As discussed above, western donors also have used foreign aid to secure access to raw materials. To capture this, I use a variable that measures each donor's total annual imports of crude oil and petroleum products from individual recipient countries.¹¹ For both total donor exports and oil imports, I expect that donors that benefit from selective incentives increase their developmental aid, thus decreasing their free-riding behavior. Donors that don't receive these incentives should react by increasing free-riding.

⁹Joint voting behavior is defined as both countries voting together yes, no, or abstain. The data is from Voeten and Merdzanovic (2009).

¹⁰I take the data from the Comtrade database (United Nations 2011).

¹¹This data is also from the Comtrade database.

Finally, as measures of good governance and state capacity, I employ an index for bureaucratic quality and an index for the rule of law. I also include GDP per capita, as control for wealth effects. Although richer countries tend to have higher state capacity, they have fewer developmental needs. They should therefore receive less developmental aid, and experience lower free-riding losses.¹² I take the indexes for bureaucratic quality and the rule of law from the International Country Risk Guide (PRS Group 2010). Both variables are coded from 0 to 4 and can take on continuous values. For both variables I expect that collective action problems become more salient as aid becomes more effective in promoting development. We therefore we should see aid to better governed countries to be subject to more free-riding. I next report results from the analysis.

Results

This section reports results based on five year intervals starting in 1983, 1993, and 2003. All variables were averaged over these time periods, and public good weights were parameterized with aid tying rates. All results are robust to using shorter four year time periods.¹³

In the analysis, I give each donor an individual intercept. These ‘donor fixed effects’ capture donor-specific variation in aid decisions that are not modeled with the included variables. In the StratAM model, the covariates $Z\gamma$ directly measure the donor’s relative preference for public versus private goods consumption. We therefore can interpret donor fixed effects as adjusting policy preferences for development versus self-oriented purposes. Including donor fixed effects also dramatically improves model fit.¹⁴

¹²This expectation is in line with existing results on GDP per capita, e.g. Berthélemy (2006); Younas (2008). I take the variable from the Penn World Tables (Heston *et al.* 2009). It is measured as purchasing power parity relative to a basket of US goods.

¹³Shorter periods starting in 1984, 1994, and 2004. US aid is not included in reported results here because reliable tying data is only available for the 1980s. However, results do not change substantively when including US aid for this time period. All specifications can be found in the appendix.

¹⁴Dependent on time period, including donor fixed effects reduces the square-root of the residual sum of squares between 91.0 and 94.9 percent. The only published analysis to date that uses the StratAM model

To obtain some sense for the data, table 2 reports summary statistics for two representative country profiles. The first profile contains the five poorest aid recipient countries for each period in the sample, the second the five richest. The group of poor countries includes Tanzania, Somalia, Uganda, Guinea-Bissau, Mali, Congo (later DRC), Ethiopia, and Niger. The rich countries are the United Arab Emirates, Qatar, Brunei, Singapor and Kuwait.

Table 2: Profiles of 5 richest and poorest countries

	5 poorest recipients	5 richest recipients
Political Rights	5.31	5.46
Muslim population, %	0.516	29.8
Joint UN voting, %	51.5	53.9
Oil exports, \$ mil.	0.00	126
Total imports, \$ mil.	23.4	693
GDP pc, ppp	2.17	117
Bureaucratic Quality	0.642	2.61
Rule of Law	2.27	4.52

Clearly, the source of wealth for the rich countries is oil production. Since most of them are also Arab countries, they have a large Muslim population share. For the rich countries, wealth is associated with markedly improved state capacity in the form of bureaucratic quality and more developed rule of law, and overall higher levels of imports. Interestingly, both and rich and poor countries have about the same score for political rights. They also both vote with donor countries about half the time in the United Nations.

In the StratAM model, the effect of individual variables on free-riding losses depends on the absolute values of all other variables. However, the differences between the two country profiles for predicted free-riding behavior is generally small. I therefore report predictions for a profile of regressors in which all variables are set to their respective overall mean for all countries in the analysis, varying only the variable of interest.

(Steinwand 2011) does not employ donor fixed effects.

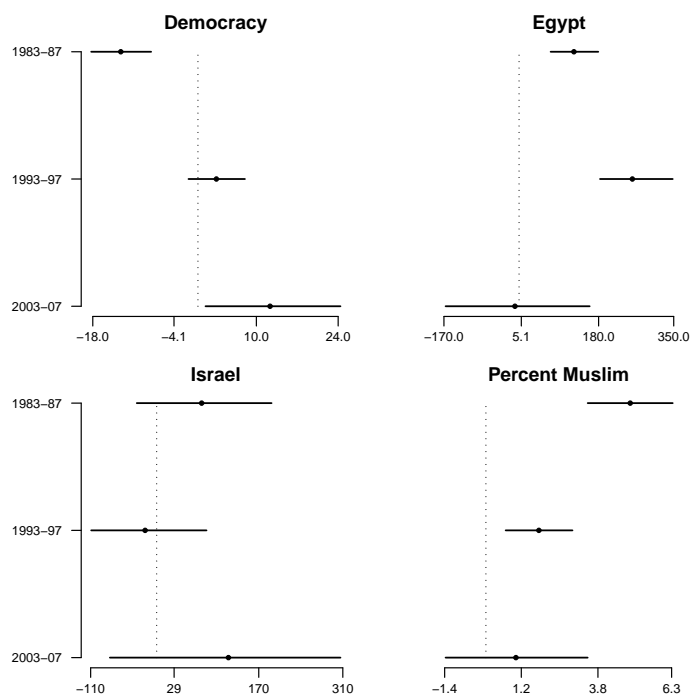
Before looking at the results, I will review some of the core quantities of interest we can retrieve from the StratAM model. As mentioned above, in the model aid allocations are driven by both, free-riding and endowment effects. I test my hypotheses using two types of variables. Recipient country variables affect all donors simultaneously. If such a variable stimulates higher developmental aid flows, all donors increase their allocations, but free-riding behavior grows as well. The quantity of interest is the increase in free-riding loss. To measure free-riding losses, I take the difference between predicted aid contributions, and a counterfactual prediction in which free-riding effects are set to zero (Steinwand 2011, p. 6). I compute marginal changes of this quantity by varying the variable of interest and comparing the difference in resulting free-riding losses.

The second type of variables are dyadic in nature. That is, they are specific to donor-recipient pairs and capture selective incentives. Changes in these variables have direct effects only on the allocations of the specific donor. However, because of the strategic structure of developmental aid, other donors will react to such changes by adjusting their free-riding behavior. Let's take an example in which recipient country A increases the share of UN General Assembly votes that fall in line with donor B's voting, and B therefore increases aid to A. Other donors do not benefit from A's changed voting behavior. Because of free-riding dynamics, they will react to B's aid increases by giving less aid to A. Donor B has incentives to compensate for this shortfall by increasing its aid allocation further. This means that free-riding losses in the aid given by B decrease, but they increase for all other donors. As a result, the net free-riding effect of a change in A's voting depends on whether B fully compensates A for the aid lost to increased free-riding by other donors. Therefore, the quantities of interest are both, the direct effect of the variable on B's aid allocation, and changes in the aggregate sum of free-riding losses and gains across all donors.

With these preliminaries out of the way, I now can discuss results from the analysis. I start with aid for shared diplomatic purposes. Figure 1 reports the marginal effects of the

variables on free-riding for the three time periods in the analysis. All of these variables are recipient country specific. Dots represent point estimates, lines 95 percent confidence intervals. Positive values indicate increased free-riding losses associated with higher aid flows.

Figure 1: Aid for Shared Diplomatic Goals, Marginal Effect on Free-Riding



Looking first at the democracy variable, we see that during the cold war, more democratic regimes received less aid and therefore were subject to less free-riding. In the 1990s, the effect of democracy goes towards zero, losing statistical significance. In the 2000s finally, democratic regimes receive higher aid allocations and are subject to more free-riding. The slow but sure trend towards supporting democracies after the end of the cold war is in line with my theoretical expectations and hypothesis 1a. The free-riding losses that result from donors' new-found enthusiasm for democracy in the 2000s amount on average to \$12.3 million per donor for each point on the democracy scale.¹⁵ This compares to an average reduction

¹⁵The democracy variable ranges between 1 and 7 in the sample, with a mean of 4.29. Absolute effect

in free-riding losses of \$13.2 million as a result of lower aid allocations during the cold war years.

We next turn to religious makeup. My theoretical expectation was that the fight against extremist terrorism in the 2000s would lead Western donor countries to give more public good aid to countries with Muslim populations, increasing collective action problems in its wake. The evidence suggest that support for Muslim countries is nothing new. In the 1980s and 1990s, higher Muslim population shares lead to higher aid allocations and increased free-riding. Contrary to expectations, this effect fades in the 2000s. It should be noted that I control for factors such as economic wellbeing, the special role of Egypt, and oil exports. These possible confounding factors cannot explain the negative effect of Muslim population share in the 2000s. On average, a one percentage point increase in the share is associated with mounting free-riding losses worth between \$1.80 million (1990s) and \$4.90 million (1980s).

When we look at Egypt, we see that the country receives more aid than other countries in the 1980s and 1990s. As I expected, this leads to an increase in free-riding losses during these time periods, lending credible support for hypothesis 1a. The importance of Egypt appears to diminish in the 2000s, with no significant difference in aid allocation or free-riding behavior. Effect sizes are large, reflecting the special role Egypt has played in Western foreign policy since the Camp David accords.

The results show that aid contributions to Egypt, relative to an average baseline recipient country, increase between \$197,000 (Finland) and \$79.5 million (UK) in the 1980s. Free-riding losses are greater than these marginal effects, ranging from \$11.2 million for Finish aid (about 56 times the predicted aid allocation) to \$161 million for Britain (about 2 times the predicted allocation). In the 1990s, extra aid to Egypt comes to between \$ 1.96 million (Finland), and \$155 million (Japan). Free-riding losses lie between \$ 27.6 million (Finland, 14 times the predicted allocation) and \$362 million (Germany, 3.8 times the predicted

sizes vary from donor to donor. I report median effects throughout.

allocation).

For Israel, the emerging picture is different. In none of the three time periods, contributions and free-riding losses are statistically different from other recipient countries. This might be due to the special character of aid to Israel. Looking at the data, the only sizeable ODA contributions came from the US (\$2.53 billion annually in the 1980s, \$1.29 billion in the 1990s) and Germany (\$90.9 million in 1980s, \$30.3 million in 1990s). Since we have tying data for the US in the 1980s, we can rerun the analysis including the US.

With the US as most important donor in the analysis, the effects of the Israel dummy on aid allocations misses the 5 percent level by the tiniest of margins.¹⁶ The model correctly predicts a large increase in US aid for Israel relative to other recipients (\$1.56 billion dollars). Free-riding effects now are statistically significant, with the average free-riding loss per donor amounting to \$312 million. The size of these losses reflects the stark asymmetry between US aid contributions and those of other donors.

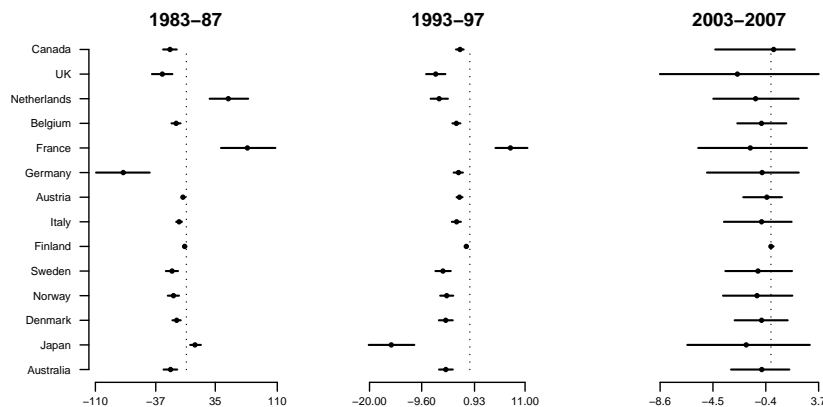
Overall there is solid support for hypothesis 1a, though some findings are mixed. Shared western causes like supporting Egypt, and strengthening democratic regimes after the end of the cold war led to substantively significant free-riding losses. When we include the US into the analysis for the cold war period, this also holds for aid to Israel. However, there is a surprising drop in support of Muslim countries in the post-9/11 world, despite the concentration of western donors on stabilizing failing regimes in Muslim countries.

We next turn our attention to competing diplomatic goals. These should provide selective incentives to the benefiting donor to give more developmental aid, while increasing free-riding by non-beneficiary donors.

Looking at UN voting, donors give less aid to countries that vote with them in the 1980s and 1990s, with the effect becoming insignificant in the 2000s. This contradicts my

¹⁶95 percent confidence bands around the predicted effect of the variable on aid allocations still contain the zero, but just barely. Lower bounds for the interval range between -1.63×10^{-3} dollars and -1.25×10^{-6} dollars.

Figure 2: Marginal Effect of UN Vote Share on Total Free-Riding



expectation that UN voting provides selective incentives. However, the net effect of aid decreases in reaction to higher UN vote shares is overwhelmingly positive.

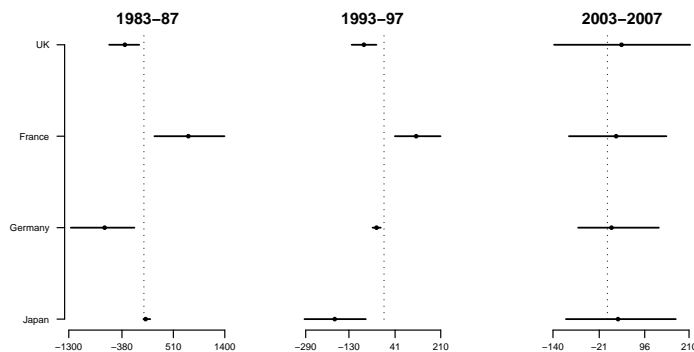
Figure 2 shows marginal changes in aggregate free-riding effects for an increase in the vote share. We see that during the 1980s, for a majority of donors (11 out of 14), aggregate free-riding decreased. This means that other donors more than compensated for aid decreases when a specific donor gave less aid in reaction to a higher vote share. Only for Japan, France, and the Netherlands, the reduction in aid is so large that increased vote shares lead to an aggregate increase in free-riding. The Japanese and French aid programs during this time period can be considered more heavily skewed towards economic and diplomatic goals than those of other nations. Thus, the model appears to pick up some of the underlying strategic dynamics, even though developmental aid is not affected by UN voting in the expected direction. In the 1990s, welfare effects become even more strongly positive. Now, for 13 out of 14 countries, higher vote shares result in aggregate net reductions in free-riding. Again, French aid is an outlier.

The analysis recovers effect sizes that are substantively important for all time periods. In the 1980s, the marginal aggregate net effect of a one percentage point increase in vote share on free riding losses varied between \$-76.3 million and \$73.9 million, with a median of

\$-12.0 million. In the 1990s, the range spans from \$-15.7 million to \$ 8.08 million, with a median net effect of \$-3.66 million.¹⁷

The second variable that captures competing strategic interests is the dummy for former colonies. Again the result runs contrary to what I expected. In the 1980s and 1990s, former colonies receive less developmental aid than other recipients from the respective former colonial power. In the 2000s, there is no statistically significant relationship. Thus, colonial status does not appear to provide selective incentives to shoulder a greater burden in providing developmental aid. On the contrary, predicted reductions in aid lead other countries to pick up some of the slack.

Figure 3: Effect of Former Colonies on Total Free-Riding



The aggregate net effects on free-riding losses are summarized in figure 3. In the 1980s, net effects do not uniformly go in one direction. Former British and German colonies experience a reduction in net free-riding losses, while former French and Japanese colonies see an increase in losses. In the 1990s, only former French colonies have negative net effects, while the others all have lower free-riding losses overall. Effect sizes again are substantial. The largest reduction in net free-riding losses is worth \$680 million (former German colonies), while the largest increase in net losses is \$ 769 million (former French colonies). In the 1990s, effects

¹⁷Vote shares varied between 22.1% (Britain and Syria in the 1980s) and 93.9% (Finland and Cyprus in the 2000s).

range from a net reduction of \$182 million (former Japanese colonies) to an increase by \$119 million (former French colonies).

Overall, there is no support for hypothesis 1b in the data. Indicators of diplomatic self-interest are not associated with allocations of developmentally oriented aid. On the contrary, the presence of such selective incentives decreases how much aid of this type donors want to give. How can we make sense of this? Two explanations seem plausible. First, giving aid for self-interested diplomatic purposes might ‘crowd out’ other types of aid. Since donors have restricted budgets, giving more aid that serves self-interested purposes lowers the amounts of money available for the public good-type of aid that is captured in the statistical analysis. This would contradict the selective incentive argument from hypothesis 1b.

As second possibility, the variables that I use to capture diplomatic self-interest could be stand-ins for economic causal mechanisms that give rise to selective incentives. As we will see below, higher exports lead to more public good aid. If UN voting and former colonial status are just epiphenomenal to underlying economic interests, we should expect that controlling for exports breaks the relationship between the former and higher aid provision. Removing the economic interest variables from the analysis should lead to a positive relationship between both UN vote share and colonial status and aid flows.

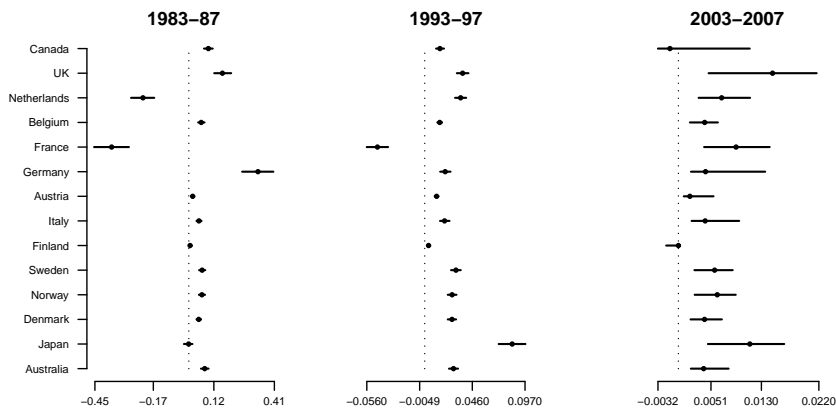
If I rerun the analysis without the variables for aid imports and oil exports, the colony dummy moves in the right direction, but does not gain statistical significance. However, the negative effect of UN vote share remains unchanged. Economic interests therefore cannot explain the unexpected findings for competing strategic interests.

Another policy area in which selective incentives should play a large role are economic interests of donors. I hypothesized that donors that benefit from economic relationships with recipient countries will be able to shoulder a greater burden in providing developmental aid. This in turn will cause bystanders to decrease their own aid contributions, increasing their free-riding.

Beginning with exports from donor to recipient countries, my theoretical expectations are borne out for the 1980s and 1990s. Greater exports are associated with higher flows of developmental aid, and more free-riding on part of other donor countries. This effect is also present in the 2000s, but just misses statistical significance.

What are the welfare effects of this dynamic? Figure 4 shows that in the 1980s selective incentives from trade were sufficient to reduce free-riding losses only in two cases. France and the Netherlands increased export driven aid sufficiently to cover resulting losses from free-riding. On the other hand, for 11 out of 14 donor countries, aid increases were not enough to make up for free-riding losses. In the 1990s, this negative welfare effect occurs for all but one of the 14 donors, with France the only exception. In the 2000s, despite no statistical significant relationship between exports and aid allocations, net free-riding losses still increase in a statistically significant manner when donors export more goods (for 12 out of 14 donors).

Figure 4: Marginal Effect of Donor Exports on Total Free-Riding



In the case of France, and to a lesser extent the Netherlands, selective incentives lead to substantively important welfare gains. In the 1980s, each additional dollar in exports from France is associated with an average decrease in free-riding losses of 30.7 cents (22.0 cents for the Netherlands). In the 1990s, this reduces to 4.5 cents per extra dollar in exports. This

finding is quite significant, given the lead donor role that France has traditionally played in francophone African countries.

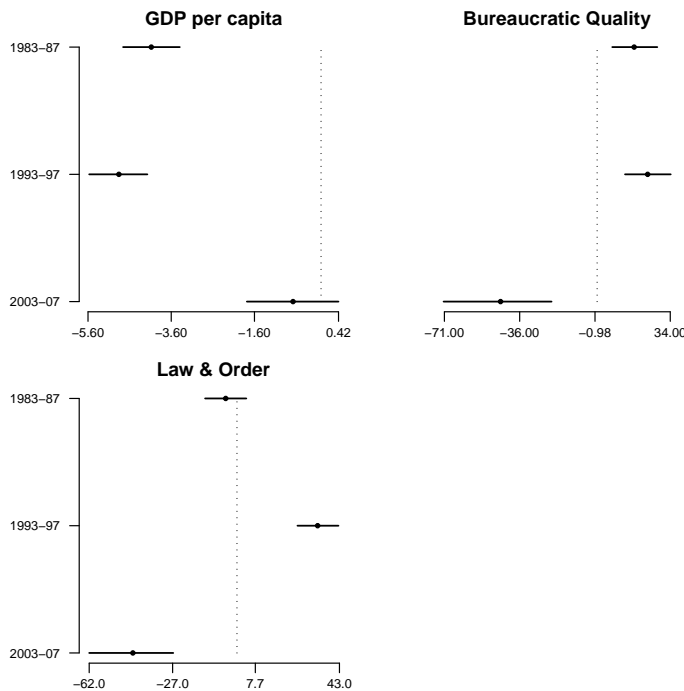
When we look at other donor countries however, the widespread negative welfare effects of export oriented aid are profound and widespread. In the 1980s, the model predicts net free-riding losses between 0.60 Cents (for exports from Finland) and 33 Cents (exports from Germany) for each additional dollar in exports from the preferred donor country. In the 1990s, this marginal effect ranges from 0.37 cents (Finland) to 0.85 Cents (Japan) per dollar in exports, and in the 2000s from 0.18 cents (Finland) to 1.5 cents (Great Britain). Clearly, the free-riding losses decrease over time. This is well in line with the observed shift of the international aid system towards less self-interest, and greater development orientation. The direction of the effect together with its attenuation over time provide strong support for hypothesis 2.

The second variable that measures economic interests of donors is oil imports from aid recipient countries. I expected that greater dependence on oil imports from a recipient country would induce donors to give more public good aid. However, there is no statistically significant effect of oil on aid allocations for any of the time periods under consideration.

I round out the empirical analysis with the effects of good governance on free riding. If countries with high state capacity and good rule of law can turn aid more effectively into development, free-riding dynamics should increase. The analysis provides some evidence for this, but the overall picture is mixed. Starting with bureaucratic quality, donors give more aid to countries with better institutions in the 1980s and 1990s. As expected, this translates into increasing free-riding losses (see figure 5). However, the effect reverses unexpectedly in the last time period. In the 2000s, better bureaucratic quality leads to decreases in aid provision, and a reduction in free-riding. This reversal is not in line with the generally accepted policy narrative that aid policies not only became more development oriented after the cold war, but that donors increasingly reward good governance. The rule of law variable

tells a similar story. While the variable is without effect during the cold war, we see an increase of aid allocations and free-riding losses during the 1990s. There also is a reversal in direction for the 2000s.

Figure 5: Aid for Developmental Goals, Marginal Effect on Free-Riding



Effect sizes for all variables are substantively significant. During the 1980s, free-riding losses increase on average by \$17.2 million per donor for each additional point on the 0 to 4 bureaucratic quality scale, and by \$23.5 million during the 1990s. After the reversal in the 2000s the same one point increase leads to a average decrease of free-riding losses by \$44.9 million. Effect sizes for the rule of law variable are on a comparable scale.

We still need to look at GDP per capita. As expected, in the 1980s and 1990s richer countries receive less public good aid, and thus had fewer free-riding losses. The effect stays negative for the years after 2000, but is too small to reliably distinguish from zero.

Overall, hypothesis 3 finds mixed support. The positive association of the two good

governance indicators with more free-riding losses in the 1990s is in line with my expectations. However, the sharp reversal of the relationship between good governance and aid after 2000 is unexpected. Since I control for GDP per capita, this switch cannot be attributed to economic changes in the recipient country population, at a time when the emerging economies of Asia made their way out of poverty. Rather, it suggests that the narrative that aid agencies have made steady progress towards targeting aid to the most deserving countries is flawed. Further research of this issue is needed.

3 Conclusion

The systematic study of collective action problems in the provision of foreign aid is still in its infancy. Using the newly developed StratAM model, I was able to confirm several broad trends in aid provision since the end of the cold war. I also found that selective incentives in the form of export promotion have positive welfare effects for a small number of donors, but for the vast majority of cases these effects are negative. The uncovered patterns have important policy implications and deserve further study.

Twenty years after the end of the cold war, the end of the primacy of diplomatic goals in foreign aid provision is undeniable. Encouragingly, the data confirm that the focus on international terrorism after the 9/11 attacks did not simply result in a resuscitation of old habits. Aid has become more geared towards promoting democracy, and propping up undesirable political regimes for fear of something worse has gone out of fashion. However, these positive developments come with their own set of problems. Aid becomes increasingly public goods oriented, and thus susceptible to increased free-riding dynamics. As the donor community seeks to support and stabilize the gains made in the middle east during the Arab Spring, this issue attains new salience.

Unfortunately, I do not find similar encouraging tendencies with respect to development

effectiveness. After an increase in the importance of good governance in the 1990s, the 2000s saw a reversal in trend. Some of the better economic performers have left the fold of heavy aid recipient countries in recent years. It is therefore possible that my findings reflect difficulty to model heterogeneity more than a profound change in policy. The tool box for making aid recipients more accountable and increase the effectiveness of aid include conditionality, ex-post conditionality, and general budget support. More research into the consequence of these tools for collective action problems is needed.

Other developments in the realm of economically motivated aid are more encouraging. My results show that selective incentives from trade lead to higher aid allocations by the benefiting donor, but the welfare effects of this practice on total aid allocations are overwhelmingly negative. Fortunately, the tendency of donors to support their export industries seems to be fading. As a result, in recent years total aid losses associated with export promotion have become diminishingly small. Aid as tool for export promotion seems on the brink of extinction. However, the data do not reflect the arrival of China on the aid scene, so this optimistic assessment needs to be qualified with a note of caution.

Looking forward, the systematic study of collective action problems in aid provision promises to shed more light on some of the continuing puzzles of foreign aid. The perennial under-provision of aid elicits calls for more donor coordination. But a more fine-grained understanding of the sources of collective action problems can lead to more targeted recommendations. At the same time, progress towards aid policies that take development and political reform seriously increase temptations to free-ride on the efforts of others. Understanding if and when selective incentives can help to overcome these tendencies provides an important building block for a better aid system.

References

- Anselin, Luc. 1988. *Spatial Econometrics: Methods and Models*. Dordrecht: Kluwer.
- Barrett, David B., George T. Kurian, and Todd M. Johnson. 2001. *World Christian Encyclopedia: A Comparative Survey of Churches and Religions in the Modern World*. 2nd ed. Oxford: Oxford University Press.
- Barro, Robert J., and Jong-Wha Lee. 2005. "IMF Programs: Who is Chosen and What are the Effects?" *Journal of Monetary Economics* 52:1245-1269.
- Berthélemy, Jean-Claude. 2006. "Bilateral Donors' Interest vs. Recipients' Development Motives in Aid Allocation: Do All Donors Behave the Same?" *Review of Development Economics* 10:179-194.
- Berthélemy, Jean-Claude, and Ariane Tichit. 2004. "Bilateral Donors' Aid Allocation Decisions – A Three-Dimensional Panel Analysis." *International Review of Economics & Finance* 13:253-274.
- Boutton, Andrew, and David B. Carter. 2010. "Carrots for Counterterrorism: Security Motivations for U.S. Foreign Aid." Working Paper. Pennsylvania State University. Accessed online on 2/2/2011 at http://www.personal.psu.edu/dbc10/aid_terror6.pdf.
- Burnside, Craig, and David Dollar. 2000. "Aid, Policies, and Growth." *American Economic Review* 90:847-868.
- Carter, David B., and Randall W. Stone. 2010. "U.S. Aid Disbursement and Voting in the United Nations General Assembly." Working Paper. Pennsylvania State University. Accessed online on 2/2/2011 at <http://www.personal.psu.edu/dbc10/unvote7.pdf>.
- Cumming, Gordon. 2001. *Aid to Africa: French and British Policies from the Cold War to the New Millennium*. Aldershot: Ashgate.

- Department of State. 2001. *Annual Report on International Religious Freedom 2001*. Washington, D.C.: U.S. Government Printing Office.
- Djankov, Simeon, Jose G. Montalvo, and Marta Reynal-Querol. 2009. "Aid with Multiple Personalities." *Journal of Comparative Economics* 37:217–229.
- Dreher, Axel. 2004. "A Public Choice Perspective of IMF and World Bank Lending and Conditionality." *Public Choice* 119:445–464.
- Easterly, William. 2007. "Are Aid Agencies Improving?" *Economic Policy* 22:633–678.
- Fearon, James D., and David D. Laitin. 2003. "Ethnicity, Insurgency, and Civil War." *American Political Science Review* 97:75–90.
- Fleck, Robert K., and Christopher Kilby. 2010. "Changing Aid Regimes? US Foreign Aid from the Cold War to the War on Terror." *Journal of Development Economics* 91:185–197.
- François, M., and I. Sud. 2006. "Promoting Stability and Development in Fragile and Failed States." *Development Policy Review* 24:141–160.
- Franzese, Robert J., and Jude C. Hays. 2008. "Interdependence in Comparative Politics: Substance, Theory Empirics, Substance." *Comparative Political Studies* 41:742–780.
- Freedom House. 2010. "Freedom in the World: Country Ratings by Region." Accessed online on 5/3/2010 at <http://www.freedomhouse.org/template.cfm?page=439>.
- Frot, Emmanuel, and Javier Santiso. 2010. "Crushed Aid: Fragmentation in Sectoral Aid." *OECD Development Centre Working Papers* 248.
- Giannone, Diego. 2010. "Political and Ideological Aspects in the Measurement of Democracy: The Freedom House Case." *Democratization* 17:68–97.

- Gibson, Clark C., Krister Andersson, Elinor Ostrom, and Sujai Shivakumar. 2005. *The Samaritan's Dilemma: The Political Economy of Development Aid*. Oxford: Oxford University Press.
- Goldstone, Jack A., Robert H. Bates, David L. Epstein, Ted Robert Gurr, Michael B. Lustik, Monty G. Marshall, Jay Ulfelder, and Mark Woodward. 2010. "A Global Model for Forecasting Political Instability." *American Journal of Political Science* 54:190–208.
- Herman, Edward S., and Noam Chomsky. 1988. *Manufacturing Consent: The Political Economy of the Mass Media*. New York: Pantheon Books.
- Heston, Alan, Robert Summers, and Bettina Aten. 2009. *Penn World Table Version 6.3*. Philadelphia, PA: Center for International Comparisons of Production, Income and Prices at University of Pennsylvania.
- Jepma, Catrinus J. 1991. *The Tying of Aid*. Paris: OECD Development Centre.
- Knack, Stephen, and Aminur Rahman. 2007. "Donor fragmentation and bureaucratic quality in aid recipients." *Journal of Development Economics* 83:176–197.
- Lancaster, Carol. 2000. "Redesigning Foreign Aid." *Foreign Affairs* 79:74–88.
- Lancaster, Carol. 2007. *Foreign Aid: Diplomacy, Development, Domestic Politics*. Chicago: University of Chicago Press.
- Marshall, Monty G., Ted Robert Gurr, and Keith Jagers. 2010. "Polity IV Project." Accessed online on 9/10/2010 at <http://www.systemicpeace.org/inscr/inscr.htm>.
- Martens, Bertin. 2005. "Why Do Aid Agencies Exist?" *Development Policy Review* 23:643–663.

- Mascarenhas, Raechelle, and Todd Sandler. 2006. "Do Donors Cooperatively Fund Foreign Aid?" *Review of International Organizations* 1:337–357.
- Morgenthau, Hans. 1962. "A Political Theory of Foreign Aid." *American Political Science Review* 56:301–309.
- Müller-Brandeck-Bocquet, Gisela, and Philipp Gieg. 2007. "Die Afrikapolitik Großbritanniens." In *Die Afrikapolitik der Europäischen Union: Neue Ansätze und Perspektiven*. Opladen: Verlag Barbara Budrich, 253–291.
- Oatley, Thomas, and Jason Yackee. 2004. "American Interests and IMF Lending." *International Politics* 41:415–429.
- OECD. 2008. *Creditor Reporting System Online*. http://www.oecd.org/document/0/0,2340,en_2649_34447_37679488_1_1_1_1,00.html.
- OECD. 2009. *International Development Statistics on CD ROM*. Paris: OECD Publishing.
- Oldhaver, Mathias. 1997. *Die Deutschsprachige Bevölkerungsgruppe in Namibia: Ihre Bedeutung als Faktor in den Deutsch-Namibischen Beziehungen*. Hamburg: Verlag Dr. Kovač.
- Olson, Jr., Mancur, and Richard Zeckhauser. 1966. "An Economic Theory of Alliances." *The Review of Economics and Statistics* 48:266–279.
- Ostrom, Elinor, Larry Schroeder, and Susan Wynne. 1993. *Institutional Incentives and Sustainable Development: Infrastructure Policies in Perspective*. Boulder, CO: Westview Press.
- PRS Group. 2010. *CountryData.com*. East Syracuse, NY: PRS Group. Accessed on 7/12/2010 at <http://www.prsgroup.com/countrydata.aspx>.

- Santiso, Carlos. 2001. "Good Governance and Aid Effectiveness: The World Bank and Conditionality." *Georgetown Public Policy Review* 7:1–22.
- Schraeder, Peter J., Steven W. Hook, and Bruce Taylor. 1998. "Clarifying the Foreign Aid Puzzle: A Comparison of American, Japanese, French, and Swedish Aid Flows." *World Politics* 50:294–323.
- Schukraft, Corina. 2007. "Die Afrikapolitik Deutschlands – von der "freundlichen Vernachlässigung" hin zu einem stärkeren Engagement." In *Die Afrikapolitik der Europäischen Union: Neue Ansätze und Perspektiven*. Opladen: Verlag Barbara Budrich, 195–220.
- Steinwand, Martin C. 2010. "Lead Donorship: Patterns, Preferences, and Competition." Paper presented at the 2010 MPSA Conference, Chicago.
- Steinwand, Martin C. 2011. "Estimating Free-Riding Behavior: The StratAM Model." *Political Analysis* 19:488–502.
- Stone, Randall W. 2004. "The Political Economy of IMF Lending in Africa." *American Political Science Review* 98:577–591.
- Tuman, John P., Jonathan R. Strand, and Craig F. Emmert. 2009. "The Disbursement Pattern of Japanese Foreign Aid: A Reappraisal." *Journal of East Asian Studies* 9:219–248.
- United Nations. 2011. *United Nations Commodity Trade Statistics Database*. <http://comtrade.un.org/db/default.aspx>. Accessed on 13 April 2011.
- Vaubel, Roland. 1986. "A Public Choice Approach to International Organization." *Public Choice* 51:39–57.

Voeten, Erik, and Adis Merdzanovic. 2009. "United Nations General Assembly Voting Data." Accessed online on 2/25/2010 at <http://hdl.handle.net/1902.1/12379> UNF:3:Hpf6qOkDdzzvXF9m66yLTg== V1 [Version].

World Bank. 1998. *Assessing Aid: What Works, What Doesn't, and Why*. Washington, DC: The World Bank.

Younas, Javed. 2008. "Motivation for Bilateral Aid Allocation: Altruism or Trade Benefits." *European Journal of Political Economy* 24:661–674.

Appendix

Table 3: StratAM, aid allocation in \$ million, 1980s.

	1983-87		1983-87 USA included		1984-87	
	Coef.	Std. Err.	Coef.	Std. Err.	Coef.	Std. Err.
σ	258	(40.5)	-440	(10.8)	305	(9.85)
GDP p.c.	-1.84	(0.154)	-1.82	(0.169)	-1.5	(0.172)
Democracy	-0.0585	(0.0113)	-0.0500	(0.0117)	-0.0486	(0.0127)
UN Vote Share	-2.65	(0.539)	-0.500	(0.450)	-2.59	(0.59)
Colony	-0.236	(0.0917)	-0.129	(0.100)	-0.207	(0.103)
Egypt	0.512	(0.108)	0.87	(0.0829)	0.546	(0.125)
Israel	0.316	(0.241)	1.04	(0.183)	0.253	(0.258)
Muslim Pop.	2.13	(0.319)	2.12	(0.335)	1.55	(0.331)
Bureau. Quality	0.0761	(0.0233)	0.0846	(0.0246)	0.0589	(0.0264)
Rule of Law	-0.0209	(0.019)	-0.0436	(0.0198)	-0.0176	(0.0217)
Total Exports	0.124	(0.014)	0.126	(0.0146)	0.114	(0.0159)
Oil Imports	-0.0914	(0.0617)	-0.194	(0.0344)	-0.095	(0.0651)
USA	NA	NA	-3.32	(0.112)	NA	NA
Canada	0.113	(0.254)	-0.339	(0.230)	0.251	(0.281)
UK	-0.336	(0.198)	-0.547	(0.189)	-0.0663	(0.223)
Netherlands	-0.439	(0.248)	-1.06	(0.221)	-0.383	(0.269)
Belgium	1.29	(0.256)	1.38	(0.289)	1.43	(0.282)
France	-1.34	(0.222)	-1.86	(0.2)	-1.27	(0.243)
Germany	-0.967	(0.265)	-1.48	(0.232)	-0.723	(0.306)
Austria	2.31	(0.37)	1.78	(0.373)	3.31	(0.479)
Italy	-0.462	(0.246)	-0.964	(0.22)	-0.486	(0.272)
Finland	3.89	(0.534)	12.2	(43)	5.06	(1.34)
Sweden	1.28	(0.362)	0.543	(0.322)	1.53	(0.397)
Norway	1.31	(0.313)	0.913	(0.296)	1.41	(0.344)
Denmark	1.53	(0.32)	1.14	(0.309)	1.75	(0.352)
Japan	-1.45	(0.278)	-2.13	(0.241)	-1.31	(0.307)
Australia	1.03	(0.312)	0.537	(0.285)	1.19	(0.346)
n	1218		1305		1218	

Table 4: StratAM, aid allocation in \$ million, 1990s.

	1993-97		1994-97	
	Coef.	Std. Err.	Coef.	Std. Err.
σ	197	(30.4)	203	(5.71)
GDP p.c.	-2.37	(0.174)	-2.25	(0.185)
Democracy	0.0151	(0.0119)	0.00595	(0.0117)
UN Vote Share	-2.17	(0.330)	-1.98	(0.324)
Colony	-0.25	(0.0801)	-0.210	(0.0814)
Egypt	1.05	(0.0822)	1.10	(0.0841)
Israel	-0.0939	(0.250)	-0.166	(0.254)
Muslim Pop.	0.851	(0.276)	0.746	(0.279)
Bureau. Quality	0.112	(0.0257)	0.111	(0.0271)
Rule of Law	0.161	(0.0204)	0.155	(0.0207)
Total Exports	0.116	(0.00926)	0.111	(0.00931)
Oil Imports	-0.177	(0.125)	-0.254	(0.13)
Canada	-0.207	(0.250)	-0.230	(0.250)
UK	-1.03	(0.213)	-1.1	(0.214)
Netherlands	-0.877	(0.237)	-0.941	(0.238)
Belgium	0.876	(0.25)	0.871	(0.253)
France	-2.07	(0.221)	-2.08	(0.218)
Germany	-1.83	(0.236)	-1.86	(0.238)
Austria	1.01	(0.268)	1.03	(0.27)
Italy	-0.710	(0.241)	-0.561	(0.244)
Finland	2.11	(0.325)	2.28	(0.364)
Sweden	-0.0529	(0.259)	-0.0701	(0.259)
Norway	-0.177	(0.249)	-0.273	(0.249)
Denmark	0.187	(0.254)	0.110	(0.254)
Japan	-2.40	(0.244)	-2.440	(0.244)
Australia	0.0369	(0.266)	-0.0444	(0.261)
n		1246		1246

Table 5: StratAM, aid allocation in \$ million, 2000s.

	2003-07		2004-07	
	Coef.	Std. Err.	Coef.	Std. Err.
σ	549	(16.10)	638	(190)
GDP p.c.	-0.208	(0.170)	-0.0818	(0.171)
Democracy	0.0381	(0.0176)	0.0352	(0.0186)
UN Vote Share	-0.280	(0.393)	0.00616	(0.400)
Colony	0.0389	(0.109)	0.0801	(0.111)
Egypt	-0.0288	(0.257)	-0.00194	(0.277)
Israel	0.370	(0.310)	0.449	(0.324)
Muslim Pop.	0.314	(0.379)	0.216	(0.399)
Bureau. Quality	-0.138	(0.0382)	-0.154	(0.0408)
Rule of Law	-0.135	(0.0259)	-0.149	(0.0283)
Total Exports	0.0158	(0.00438)	0.0135	(0.00449)
Oil Imports	0.0149	(0.0206)	0.0135	(0.0188)
Canada	-0.105	(0.264)	-0.0111	(0.27)
UK	-1.28	(0.26)	-1.34	(0.268)
Netherlands	-0.243	(0.292)	-0.18	(0.301)
Belgium	1.04	(0.31)	1.43	(0.346)
France	-1.33	(0.261)	-1.32	(0.266)
Germany	-1.30	(0.287)	-1.34	(0.299)
Austria	1.14	(0.317)	1.08	(0.328)
Italy	0.190	(0.299)	0.201	(0.308)
Finland	12.2	(60.4)	6.72	(3.38)
Sweden	0.563	(0.304)	0.636	(0.317)
Norway	0.593	(0.301)	0.724	(0.315)
Denmark	0.798	(0.305)	0.966	(0.322)
Japan	-1.69	(0.297)	-1.68	(0.306)
Australia	0.507	(0.251)	0.655	(0.261)
n	1344		1344	