DON'T SHOOT THE MIDDLEMAN! AGENT QUALITY AND EFFECTIVE DELIVERY OF INTERNATIONAL DEVELOPMENT AID

DAVID ZETLAND

ABSTRACT. Bilateral or multilateral organizations control over 80 percent of International Development Aid (IDA). These organizations—as middlemen—have significant market power. Some commentators claim these organizations waste aid money, reducing effectiveness. My goal is to explain how these organizations succeed and fail.

I begin by noting that donors, who want to prevent waste, have an asymmetric information problem: They do not know the middleman's *quality*, a parameter I define to be the combination of job knowledge and professional identity. All else equal, a middleman with higher quality will be more effective in delivering aid. Since the donor does not know the middleman's quality and the middleman's position is secure, they strategically interact in a Cournot framework. Their reaction functions define equilibrium levels of donor monitoring effort and middleman *theft*, which I broadly define to include waste and mismanagement.

Both monitoring and quality increase effective IDA delivery, but quality dominates in three ways: First, a high-quality middleman delivers IDA effectively without monitoring; second, a low-quality middleman does a slightly-better job under intensive monitoring but no better when the donor's monitoring is weak; third, an overattentive donor can lower overall efficiency by "riding the back" of a high-quality middleman. The policy implications are clear: Get the right people. I recommend a shift from ex-ante program design, contemporaneous monitoring, and ex-post evaluation to hiring quality, competition, benchmarking, and recipient empowerment.

1. Overview

Foreign aid might be defined as a transfer of money from poor people in rich countries to rich people in poor countries. —Douglas Casey (1992)

In 2005, Overseas Development Assistance (ODA) to developing countries was \$131.7 billion in 2004 dollars. Emergency relief absorbed 7.5 percent of ODA while NGOs distributed another 11 percent. Of the remaining 81 percent, \$81.6 billion and \$25.7 billion flowed through bilateral and multi-lateral agencies, respectively.¹

I concentrate on this 81 percent of International Development Aid (IDA). More particularly, I concentrate on factors that bi- and multi-lateral agencies share that might contribute

Date: May 26, 2007. First Draft: Dec 18, 2004. 2,650 words.

Key words and phrases. International Development Aid, Asymmetric Information, Identity, Corruption. JEL: F35, O19.

Thanks to Rosa Català-Luque, Avinash Dixit, Diego Gambetta, QQ Huang, Gorm Kipperberg, Johannes Münster, Rich Sexton, Mary Shirley and Stergios Skaperdas for helpful comments. Special thanks to Aslıhan Arslan, Steve Boucher, Natalia Cruz, Alex McCalla and Treena Wu for long discussions.

¹http://stats.oecd.org/wbos/default.aspx?DatasetCode=TABLE1, extracted on 18 Feb 2007.

DAVID ZETLAND

to the well-documented *lack* of development resulting from their efforts; see Easterly (2001, 2005, 2006), *passim*. Although middlemen on the receiving side are also often responsible for IDA-failure, I simply refer to a single middleman for the remainder of this paper.

The most obvious characteristic of these middlemen is their status as the designated IDA channel. While this market power seems an obvious reason for IDA failure, the fact that the middleman employs people who "are talented and desperate to succeed" indicates that failure is not predestined (McCalla, 2007). IDA has a lot of asymmetric information. Traditional tools for dealing with adverse selection will not work when there is no choice of middleman; monitoring inputs and outcomes is far more difficult due to the big cultural, logistical and political distance between donor and middleman. In such circumstances, Eswaran and Kotwal (1985) predict that demand for an agent would collapse. It doesn't with IDA, and I use a different analytical method to explain how IDA can either succeed or fail.

I explain success as a function of middleman *quality*, which I decompose into two factors: knowledge of and identity in one's job (Akerlof and Kranton, 2000). Although the donor *may* monitor the middleman, and this monitoring *may* lower the middleman's theft (or waste) of aid, middleman quality is the dominant determinant of effective IDA delivery. A "good" middleman often delivers more effective IDA when unmonitored than a "bad" middleman will when monitored diligently. My analysis of IDA follows in the frustrating tradition of Martens (2002): I cannot prevent aid failure, I can only describe the situation to focus the debate.

2. The Middleman

To run an organization *entirely* on incentives to personal gain is pretty much a hopeless task. —Sen (1977, p. 334–5)

Consider a donor who uses an organization or specific person as a middleman to maximize the *effectiveness* of her donation—"the extent to which IDA resources reach the intended user for the intended use"—to a passive recipient who cannot directly influence the middleman or give feedback to the donor (Martens (2002, p. 14); Wu (2005)). The donation, targeted recipient, and designed middleman are exogenous to the model.

How well will the middleman do his job? If he is good, he does it better than the donor would herself. If he is bad, he extracts rents (stealing, wasting and/or misallocating funds, which I call "theft"). I use two parameters to define the middleman's quality: knowledge $(\alpha_k \in [0, 1])$ and identity $(\alpha_i \in [0, 1])$. Knowledge corresponds with the middleman's ability to do the job; identity matches his desire to do so.² I combine these parameters into $\alpha_m \equiv \alpha_k \alpha_i \in [0, 1]$, a single parameter that is greater than one-half for good middleman and less than one-half for a bad one. Aid effectiveness, all things equal, rises in quality.

Because the middleman is designated outside the model, the donor faces no problem of adverse selection. Put another way, the donor faces a middleman of unknown quality, and their strategic relationship is better modeled as a cat and mouse game of reaction functions where more effort may lower theft and more theft may increase effort, but neither party is replaced.³

3. The Model of Donor and Middleman

I begin with a simple model where the middleman maximizes a linear utility function without monitoring, change that function to log-linear, and then bring in monitoring. I assume one period and normalize the middleman's wage (equal to his opportunity cost) to zero.⁴

In the base case the donor gives 1 to deliver as effective IDA. The middleman chooses theft (t) to maximize his additively-separable linear utility, i.e.,

$$\max_{t} \quad U_m = u(c_m, c_r; \alpha_m) = (1 - \alpha_m)u(c_m) + (\alpha_m)u(c_r) \tag{1}$$

subject to
$$c_r = 1 - t \qquad c_m = t,$$

where c_m is the consumption of the middleman, c_r is that of the recipient, and α_m is the parameter of the middleman's quality. This base case has no strategic interaction, since the middleman acts without concern for the donor's reaction, but it does take place in the shadowy presence of the recipient, whose consumption affects the middleman through his identity (α_i) or effectiveness in minimizing theft and losses, not because the middleman cares directly about recipient utility.

²I define "identity" as the desire to behave professionally or identify with one's group to avoid complications of interpersonal utility and/or altruism (Olson (1971, p. 61); Wilson (1989, p. 60); Akerlof and Kranton (2000) and Barr et al. (2003, p. 3)). Although Fehr (2005) claims that altruism or social preferences plus individual rational choice can result in cooperative behavior, identity produces the same results with a completely selfish agent.

³Murrell (2002) creates a five-player model with bargaining, contracting, and feedback between additional principals and agents embedded in the donor and recipient roles. He uses the equivalents of α_k and α_i but analyzes equilibrium as a outcome of repeated, monitored contracts.

⁴One period still allows a donor to monitor and punish; additional periods add dynamic complexity without changing the basic result. On a related note, World Bank staff often implement policies knowing that their five-year job-rotation will occur before the project's outcome is known—inviting one-period thinking (McCalla, 2007). I omit wages because most middlemen make far more than subsistence wages.

3.1. Unmonitored Middleman—Linear Utility. In the simplest case—linear utility—we rewrite Equation 1 on the preceding page in terms of t to get:

$$\max_{t} U_m(t; \alpha_m) = (1 - \alpha_m)t + \alpha_m(1 - t) = t(1 - 2\alpha_m) + \alpha_m.$$
(2)

Given $\alpha_m \in [0, 1]$, we get the corner solutions of t = 1 when $\alpha_m < 0.5$ and t = 0 when $\alpha_m \ge 0.5$. This bang-bang outcome clarifies the impact of α_m on theft.

3.2. Unmonitored Middleman—Log-Linear Utility. The realistic case of log-linear utility gives interior solutions:

$$\max_{t} U_m(t; \alpha_m) = (1 - \alpha_m) \ln(t) + \alpha_m \ln(1 - t).$$
(3)

The middleman equates the marginal benefit and marginal cost of theft. The benefit goes to personal consumption, the cost comes from the indirect reduction in utility that the middleman suffers when theft reduces the recipient's consumption. From the first-order conditions of Equation 3, we see that delivered IDA depends directly on α_m , i.e.,

$$1 - t = c_r = \alpha_m. \tag{4}$$

3.3. Why Use a Middleman? Assume for a moment that wages must be paid. How can a middleman improve efficiency when a donor is willing to act as her own middleman for free? Consider the example of an enthusiastic ($\alpha_i = 0.9$) but ignorant ($\alpha_k = 0.2$) donor who acts as her own middleman. With $\alpha_m = 0.18$, Equation 4 gives theft from waste and misallocation of 0.82 and $c_r = 0.18$. If she hires a middleman who cares less ($\alpha_i = 0.5$) but knows more ($\alpha_k = 0.8$), then $\alpha_m = 0.40$, and Equation 4 gives $c_r = 0.40$. If the middleman is paid part of the difference (0.40 - 0.18 = 0.22), then his employment is a Pareto-improvement. Since 1 represents 100 percent of the IDA budget, a fraction of the difference might be more than enough to pay wages to the middleman.

3.4. Monitored Middleman. When the donor monitors the middleman for theft, their interaction is strategic. I use Cournot-style reaction functions to characterize players' interaction. The probability of detecting theft, π , depends on the level of theft, t, and monitoring effort, $f \in [0, 1]$, i.e.,

$$\pi(t, f) = Atf \in (0, 1), \tag{5}$$

The coefficient A allows for different monitoring technologies; I set A = 1 and ignore it hereafter. I assume that a middleman who is caught keeps $\frac{t}{4}$ —reflecting partial consumption and limited liability—while $\frac{t}{4}$ is lost and the rest $(1 - \frac{t}{2})$ goes to the recipient.

In this Cournot scenario, reaction functions assure that the middleman *does not* get caught in equilibrium, i.e., the middleman reduces theft to just below the detectable level to keep his job. Monitoring is effective in reducing theft through reactions, not through ex-ante contracts or unmeasurable ex-post outcomes.

The donor's effort varies with α_d , a combination of α_i (identity or warm glow) and α_k (knowledge of IDA and the middleman). Since monitoring may or may not result in catching theft, she has a log-linear *expected* utility function of the disutility of effort—set at $\ln(1 - f)$ —plus the utility of recipient consumption (or disutility of theft)—both weighted by α_d . Assuming monitoring does not affect income or consumption, we get:

$$\max_{f} EU_{d} = (1 - \alpha_{d})\ln(1 - f) + \alpha_{d} \left[\pi \ln\left(1 - \frac{t}{2}\right) + (1 - \pi)\ln(1 - t)\right].$$
 (6)

The middleman's expected utility function is Equation 3 on the previous page, rewritten to reflect the probability of getting caught (π) or not $(1 - \pi)$, i.e.,

$$\max_{t} EU_m = \pi \left[(1 - \alpha_m) \ln\left(\frac{t}{4}\right) + \alpha_m \ln\left(1 - \frac{t}{2}\right) \right] + (1 - \pi)[(1 - \alpha_m) \ln(t) + \alpha_m \ln(1 - t)].$$
(7)

The first derivatives of Equations 6 and 7 with respect to f and t, respectively, give the donor and middleman's reaction functions, $R_d^*(t; \alpha_d)$ and $R_m^*(t; \alpha_m)$.⁵ The donor's reaction function is smoothly concave in t and α_d ; see Figure 1 on the next page. The reaction function of the middleman (not shown) has similar characteristics.

I plot the reaction functions using sample α_d and α_m values. In general, donor monitoring rises when theft rises, and middleman theft falls when monitoring rises; see Figure 2. One can see that some solutions (thick lines) intersect while others (thin lines) do not. Crossing points are equilibria for a given pair of donor-middleman α_s ; the absence of intersection means an equilibrium with corner solutions. For example, if a low- α donor ($\alpha_d(0.3)$) combines with a high- α_m middleman ($\alpha_m(0.7)$), trivial monitoring has no effect on theft but may distract the middleman from his job.⁶

Middleman quality has a far stronger influence on outcomes than donor quality: A good middleman ($\alpha_m(0.7)$) steals about 30 percent of aid; a bad one ($\alpha_m(0.1)$) steals 70–90 percent. Monitoring the former has no effect—a donor with $\alpha_d(0.9)$ doesn't even intersect that middleman's reaction function. On the other hand, monitoring the low- α middleman reduces

⁵I cannot derive a closed-form solution for $R_m^*(f; \alpha_m)$ with respect to f.

⁶See Shirley (2005, p. 15) and Kramer (1999, p. 591) for respective examples. Sliwka (2003, p. 4) predicts that monitoring can signal to the middleman that other workers have low α , leading him to lower his own performance to the average without fear of retribution or because he wants to avoid peer pressure to conform.



FIGURE 1. The donor's reaction function is convex in her quality (α_d) and theft (t).

theft from 90 percent to about 80 percent of the total—still far above the 30 percent figure of the good middleman.

4. DISCUSSION AND POLICY RECOMMENDATION

Although there is considerable debate over the goals of IDA, and whether it has a positive or negative impact, IDA will continue; see, e.g., Hancock (1989); Barrett (1998); Easterly (2001); Knack (2001); Kremer and Miguel (2004); Zerbe (2004); Perkins (2004); Foroohar (2005); Easterly (2006); Masud and Yontcheva (2005); Balaker (2005); Berthélemy (2006); Sundberg and Gelb (2006); Prokopijevic (2006). If we assume that the median voter *wants aid* to help the median recipient, our task is to increase the effective delivery of IDA.⁷

In the previous section, I argue that an increase in middleman quality dramatically increases the effective delivery of IDA. A middleman who neither cares nor knows how to do his job reduces effective IDA through theft, waste, etc. The IDA community responds with new programs that promise "sufficient conditions" for development—e.g., "changes since the mid-1990s hold clear promise for improving IDA quality and effectiveness." (Sundberg and

⁷Many donate to feel good or affiliate with a "winning team"; they may not care if their donation actually improves matters (Cowen, 2006).



FIGURE 2. An interior equilibrium exists only in the cases where donor and middleman reaction functions overlap (thick traces $(a_m(0.1) \text{ and } (a_d(0.8)))$. The indifferent donor $(\alpha_d = 0.3)$ has an upward-sloping reaction function to the right. The good middleman $(\alpha_m = 0.7)$ has a downward-sloping reaction function to the left. Thinner reaction functions do not cross—indicating corner solutions at minimum effort and maximum theft.

Gelb, 2006, p. 17)—but constantly fall short. If there is one feature constraining improvement, it is the market power of official IDA organizations. I suggest these actions to improve IDA delivery:

- (1) Get the right people. Andrés-Alonso et al. (2006) provide empirical evidence that "active" donors carefully choose and monitor middlemen. To understand who is a right person, quantify knowledge and identity and relate these measures to actual development. By extension, put less attention on ex-ante program design, contemporaneous monitoring and ex-post evaluation.
- (2) Increase competitive bidding and benchmarking among bilateral and multilateral agencies so they compete on results—not quantity of disbursements, volume of stake-holder meetings, budget allocations, etc. (Cruz, 2006). Underperforming agencies should be shut down, and their budgets reabsorbed into the general fund or redirected to more successful agencies.

DAVID ZETLAND

- (3) Put more attention on hiring better middlemen by, for example, hiring people who come from or live in the recipient country. Make sure to pay them less than the average bureaucrat. Only those who are happy to take the base wage—nothing more—and who know how to do their jobs will not quit or be fired; see, e.g., Reinikka and Svensson (2004).
- (4) Give IDA recipients (not their governments!) more power to pull projects to themselves replacing big pushes and central planning with recipient-defined effectiveness (Easterly, 2006; Prokopijevic, 2006).

4.1. NGOs to the Rescue?

The quality and competence of the NGO staff were the key to success...staff *motivation* tended to be far stronger than in government departments —Kruse et al. (1997, §3.11.2).

Since many NGOs specialize and define themselves in IDA delivery, they often achieve higher quality (efficiency) and a larger share of IDA follows—relative to bilateral and multilateral organizations (Masud and Yontcheva, 2005). Foroohar (2005) notes that private NGOs share of IDA flows grew from 4.6 percent in 1995 to 13 percent in 2004. If *relative* shares reflect better performance, the structural characteristics of private NGOs (competition, decentralization, low wages) probably matter. These characteristics are consistent with the knowledge and identity parameters that compose quality in my model. NGOs can suffer from quality issues, of course, when rent-seekers enter for "easy money and exotic places" (Dickinson, 2005; Foroohar, 2005). Competition is healthy—NGOs with low α_m fail and exit.

NGOs are only a partial solution; bi-and multilateral IDA agencies are too big and too entrenched to ignore. I provide a framework for explaining and quantifying why they are perceived as ineffective. Although reform may be difficult to design and implement, the importance of these organizations requires that we try.

References

- Akerlof, G. A. and Kranton, R. E. (2000). Economics and Identity. Quarterly Journal of Economics, 115(3):715–53.
- Andrés-Alonso, P. d., Martín-Cruz, N., and Romero-Merino, M. E. (2006). The Governance of Nonprofit Organizations: Empirical Evidence from Nongovernmental Development Organizations in Spain. Nonprofit and Volutary Sector Quarterly, 35(4):588–604.
- Balaker, T. (2005). Trade or Aid?: What's the Best Way to Help the World's Poor? . In Segal, G. F., editor, *Annual Privatization Report*. Reason Foundation, Santa Monica, CA.
- Barr, A., Lindelow, M., and Serneels, P. (2003). To Serve the Community or Oneself: the Public Servant's Dilemma. *Center for Study of African Economies Working Paper*, 11.

- Barrett, C. B. (1998). Food Aid: Is It Development Assistance, Trade Promotion, Both, or Neither? American Journal of Agricultural Economics, 80(3):566–571.
- Berthélemy, J.-C. (2006). Bilateral Donors' Interest versus Recipients' Development Motives in Aid Allocation: Do All Donors Behave the Same? *Review of Development Economics*, 10(2):179–194.
- Cowen, T. (2006). Investing in Good Deeds Without Checking the Prospectus. New York Times, 15 Jun:Section C, Page 3, Column 1.
- Cruz, N. M. (2006). The Delivery of Public Development Aid: A Buy-or-Assembly Decision. Working Paper. Available from ambiela@eco.uva.es.
- Dickinson, L. (2005). Government for Hire: Privatizing Foreign Affairs and the Problem of Accountability under International Law. *William & Mary Law Review*, 47:135–237.
- Easterly, W. (2001). The Elusive Quest for Growth : Economists' Adventures and Misadventures in the Tropics. The MIT Press, Cambridge, MA.
- Easterly, W. (2005). The Utopian Nightmare. Foreign Policy, 150(Sep/Oct):58-64.
- Easterly, W. (2006). The White Man's Burden: Why the West's Efforts to Aid the Rest Have Done So Much Ill and So Little Good. Penguin Press, New York.
- Eswaran, M. and Kotwal, A. (1985). A Theory of Contractual Structure in Agriculture. American Economic Review, 75(3):352–67.
- Fehr, E. (2005). Social Preferences and Institutional Design. *Keynote Lecture at ISNIE Annual Conference, Barcelona*.
- Foroohar, R. (2005). Where the Money Is. *Newsweek International*, 5 Sep.
- Hancock, G. (1989). Lords of Poverty: The Power, Prestige, and Corruption of the International Aid Business. MacMillan, London.
- Knack, S. (2001). Aid Dependence and the Quality of Governance: Cross-Country Empirical Tests. Southern Economic Journal, 68(2):310–329.
- Kramer, R. M. (1999). Trust and Distrust in Organizations: Emerging Perspectives, Enduring Questions. Annual Review of Psychology, 50(1):569–598.
- Kremer, M. and Miguel, E. (2004). The Illusion of Sustainability. *NBER Working Paper*, 10324.
- Kruse, S.-E., Kyllönen, T., Ojanperä, S., Riddell, R. C., and Vielajus, J. (1997). Searching For Impact And Methods: NGO Evaluation Synthesis Study. Technical report, OECD/DAC Expert Group on Evaluation. Available at http://www.valt.helsinki. fi/ids/ngo/conte2.htm.
- Martens, B. (2002). Introduction. In Martens, B., Mummert, U., Murrell, P., and Seabright, P., editors, *The Institutional Economics of Foreign Aid*, chapter 1, pages 1–33. Cambridge University Press.
- Masud, N. and Yontcheva, B. (2005). Does Foreign Aid Reduce Poverty? Empirical Evidence from Nongovernmental and Bilateral Aid. *IMF Working Paper*, 05/100.
- McCalla, A. (2007). conversation. 1 Feb.
- Murrell, P. (2002). The Interaction of Donors, Contractors and Recipients. In Martens, B., Murrert, U., Murrell, P., and Seabright, P., editors, *The Institutional Economics of Foreign Aid*, chapter 3, pages 69–111. Cambridge University Press.
- Olson, M. (1971). The Logic of Collective Action, volume 124 of Harvard Economic Studies. Harvard University Press, Cambridge, MA.

- Perkins, J. (2004). Confessions of an Economic Hit Man. Berrett-Koehler Publishers Inc., San Francisco.
- Prokopijevic, M. (2006). Why Foreign Aid Fails. ICER Working Paper, 19/2006.
- Reinikka, R. and Svensson, J. (2004). Working for God? CEPR Discussion Paper, 4214.
- Sen, A. K. (1977). Rational Fools: A Critique of the Behavioral Foundations of Economic Theory. *Philosophy & Public Affairs*, 6(4):317–344.
- Shirley, M. (2005). Can Aid Reform Institutions? Ronald Coase institute Working Paper, 6.
- Sliwka, D. (2003). On the Hidden Costs of Incentive Schemes. IZA Working Paper, (844).
- Sundberg, M. and Gelb, A. (2006). Making Aid Work. Finance & Development, 43(4):14–17.
- Wilson, J. Q. (1989). Bureaucracy: What Government Agencies Do and Why They Do It. Basic Books, New York.
- Wu, T. (2005). email from Research Fellow, University of Maastricht Graduate School of Governance. 12 Sep and 7 Feb 2007.
- Zerbe, N. (2004). Viewpoint: Feeding the Famine? American Food Aid and the GMO Debate in Southern Africa. Food Policy, 29:593–608.