Donor Influence in MDBs: the Case of the Asian Development Bank

Christopher Kilby

Department of Economics

Vassar College and Haverford College

chkilby@yahoo.com

(610) 526-9652

August 5, 2002

*** Preliminary Draft – Please contact author before citing these results ***

Abstract: This paper explores the influence of Japan and the United States over the geographic distribution of Asian Development Bank (ADB) loans. Although nominally an independent, multilateral organization, the ADB is widely regarded as bowing to the interests of its two most influential donors. Estimation using panel data for all ADB borrowing countries from 1968 to 1992 reveals significant differences in donor influence with Japanese commercial interests carrying more weight than US interests. Comparing the results with work on the geographic distribution of World Bank lending by Fleck and Kilby (2001) suggests that donor interests more heavily influence the ADB than the World Bank. This finding justifies the existence of regional development banks on political grounds but calls into question their relative merits on economic grounds.

I. Introduction

Founded in 1966, the Asian Development Bank (ADB) was modeled closely on the World Bank, the first multilateral development bank. One of the fundamental principles of multilateralism is independence from direct donor control. Independence allows multilateral agencies to allocate their resources more efficiently (in terms of promoting social and economic development) and lends credibility to their policy advice while also strengthening their information signaling role (Rodrik 1995).

Yet since the ADB's early days, critics have charged that the two major donors, Japan and the United States, have had extensive influence over lending, policy and staffing decisions (e.g., Krasner 1981; Upton 2000, 68,70; Wihtol 1988). This paper examines the degree to which the geographic distribution of ADB lending follows to Japanese and U.S. interests. Estimation uses panel data for all ADB borrowing countries from 1968 to 1992. After controls for factors which should determine the apolitical distribution of lending, I introduce measures of donor interests to test for allocation based on narrow donor self-interest. The estimation reveals significant differences in donor influence with Japanese commercial interests carrying more weight than US interests. Comparing the results with work on the geographic distribution of World Bank lending by Fleck and Kilby (2001) suggests that donor interests more heavily influence the ADB than the World Bank. This finding justifies the existence of regional development banks on political grounds but calls into question their relative merits on economic grounds.

II. Literature Review

Much of the aid allocation literature has focused on donor interest versus recipient need as determinants of the distribution of aid between recipient countries (Ball and Johnson 1996; Bowles 1989; Dudley and Montmarquette 1976; Gounder 1994; Maizels and Nissanke 1984; McKinlay 1978; McKinlay and Little 1977, 1978A, 1978B, 1979; Meernik, Krueger, and Poe 1998; Pasquarello 1988; Shishido and Minato 1994; Trumbull and Wall 1994; Weck-Hannemann and Schneider 1991; Wittkopf 1972). In general, researchers have found geopolitical and commercial interests important for the U.S. (Alesina and Dollar 2000; Ball and Johnson 1996; Eggleston 1987; McKinlay and Little 1977, 1979; Meernik, Krueger and Poe 1998; Shapouri and Missiaen 1990), commercial interests important for Japan (Alesina and Dollar 2000, Schraeder et al. 1998) and humanitarian concerns important for small donors, particularly Canada, the Netherlands, Denmark, Norway and Sweden (Alesina and Dollar 2000; Stokke 1989). Studies comparing U.S. and Japanese bilateral aid show Japan catering to U.S. geopolitical interests when Japan has no commercial interests (Hickman 1993; Katada 1997). Previous work on multilateral aid allocation finds more emphasis on recipient need as compared to bilateral aid as a whole (Burnside and Dollar 2000; Alesina and Dollar 2000). However, a number of studies of World Bank lending uncover patterns of apparent donor influence based on trade and financial flows (Akins 1981; Fleck and Kilby 2001; Frey and Schneider 1986; Weck-Hannemann and Schneider 1991).

Japanese and U.S. influence is the focus of much of the literature on ADB governance (Dutt 1997, 2001; Krasner 1981; Wan 1995, Wihtol 1988; Yasutomo 1983, 1993A, 1993B, 1995). Japan has significant sway because of its generous funding (especially for the Asian

Development Fund (ADF)) and Bank staffing (Japanese president and close ties with MOF). U.S. influence derives from its leading economic and military position in world affairs, the ADB charter which gives U.S. and Japan equal voting weights, and funding mechanisms which allow the most recalcitrant member typically the U.S. significant leverage (Wihtol 1988). As Japan has moved to take a more assertive position, a number of U.S./Japanese disagreements have arisen over ADBs role, policy, and funding (Clad 1988; Economist 1987, 1988, 1989; Rowley 1992; Sender 1993; Yasutomo 1993, 1995). Mirroring patterns in bilateral aid, analysis of governance suggests that the ADB promotes both Japanese commercial interests and U.S. economic and geopolitical interests (Dutt 1997, 2001; Economist 1989, Rowley 1992, Wihtol 1988).

While most researchers conclude that Japan and the United States have a very important influence on ADB policies and operations, relatively little quantitative work has been done on ADB aid allocation in relation to donor interests.[1] Krasner (1981) examines the correlation

[1]Yasutomo (1983, 1993A, 1993B, 1995) takes a slightly different position on Japanese influence, arguing that Japan neither wants nor needs to exert undue influence over the ADB. In discussing the Japanese Ministry of Finance (MOF) which is charged with ADB oversight, Yasutomo (1983, 154) asserts:

> The major reason for MOF acquiescence rests in the perception by MOF policymakers that Japans national interests and the [Asian Development] Banks interests are compatible and identical. ... The pursuit of national goals through a multilateral framework remains the most effective method of achieving those goals.

between ADB lending per capita and measures of U.S. and Japanese interests (net resource flows, ODA, and trade, all per capita). The correlations for Japan are uniformly high (over .5 and as high as .88) while the U.S. correlations are somewhat lower and more variable (mostly over .3 but as low as –.20 for ODA per capita). Krasner attributes the difference between the U.S. and Japanese figures to different objectives, i.e., the long-term geopolitical interests of a hegemonic power versus the narrower commercial interests of a "normal power."

Wihtol (1988, 102) also compares the allocation of bilateral aid with that of ADB loans, noting:

> Country allocation is closest in line with Japan's priorities, particularly the fact that 57.6 per cent of Japanese [bilateral] aid to Asia – in comparison with 54.9 per cent of ADB lending – goes to Indonesia, Thailand, South Korea, and the Philippines, all countries of particular trade and investment interest to Japan. Country allocation is also closely in line with US political priorities, although US bilateral aid has tended to concentrate more on low-income countries, particularly India and Bangladesh.

Countries receiving little or no ADB money closely parallel U.S. positions. Wihtol (1988, 102) points out that, as a result of US pressure, the ADB made no loans to Vietnam after 1974, a single loan to Cambodia, and only trivial loans to Laos. Lending to Afghanistan ceased after 1979 Soviet invasion and Taiwan did not borrow after its UN seat switch to China in 1971.

Yasutomo (1993A, 1993B, 1995) explores increased Japanese activism in the ADB but primarily through normal institutional channels.

China only became a member in 1986 "partly due to strong [U.S.] congressional opposition to such a move" (Wihtol 1988, 102). Access to the ADF, the concessional window of the ADB, also appears to have been influenced by US political pressure (Wihtol 1988, 104). Wihtol concludes that "the allocation of lending by country...[is] largely a reflection of the political and economic concerns of the [Asian Development] Bank's donors" (Wihtol 1988, 173).

III. Estimation Methods and Data

The basic approach in this paper is similar to that in Fleck and Kilby (2001). The aid allocation equation includes variables consistent with the ADB's charter, i.e., measures of recipient need and ability to use aid well (aid effectiveness), plus donor-specific variables that reflect commercial and geopolitical interests in the recipient country. These variables should capture the to which Japan and U.S. influence the allocation of ADB loans.

A number of difficult specification issues arise in every aid allocation estimation. There is as yet no consensus on what form of dependent variable to use. Depending on the question at hand, previous studies have used the level of aid from the donor to the recipient (A_{it}), aid per capita (A_{it}/N_{it}), aid as a share of GDP (A_{it}/Y_{it}), or aid share ($A_{it}/\Sigma_j A_{jt}$). The level of aid is appealing because it is straightforward and because policy debates and budget allocation are typically cast in terms of the overall amount of aid flowing to recipient countries (Feeny and McGillivray 2002). Aid per capita is also has merit as it captures how much aid "should" go to the recipient and hence has been used extensively in donor interest-recipient need models. However, both these measures are susceptible to time trends due to inflation, increased burden sharing, donor fatigue, or changing geopolitics; variation due to changing exchange rates is also

a very significant issue when comparing different donors. Aid as a share of GDP is an important measure for questions of growth (Burnside and Dollar 2000) or aid dependency (O'Connell and Soludo 2001) but is not closely tied to standard rationale for aid allocation.[2] In contrast, aid share emerges as the natural measure from some theoretical models of aid allocation (Fleck and Kilby 2001, Trumbull and Wall 1994). Using aid shares also eliminates many of the problems cited above and directly captures the relative importance of one recipient versus another, the focus of this study.[3]

One drawback of the share specification is casting independent variables in terms of shares. For some variables, this is natural (e.g., population $share_{it} = N_{it}/\Sigma_j N_{jt}$, export $share_{it} = EX_{it}/\Sigma_j EX_{jt}$) but for other variables (e.g., GDP per capita) there is no natural share specification.[4]

We could specify a simple equation (suppressing subscripts i and t) as:

$$s^{ADB} = \mathbf{Q}\boldsymbol{\beta_0} + \mathbf{Z}\boldsymbol{\beta_1} + \varepsilon$$

where **Q** captures recipient need and aid effectiveness and **Z** reflects donor interests (commercial and geopolitical interests for Japan and the United States). The hypothesis of no donor influence is $\boldsymbol{\beta_1}=\mathbf{0}$.

The set of variables included in **Q** could be sizable. Just considering recipient need, a

[2] Except to limit aid to highly dependent countries. Burnside and Dollar (2000) estimate aid allocation equations using aid as a share of GDP but this is not the focus of their study.

[3] Using shares does obscure the size of the overall budget being divided between recipients and how donor interest or recipient need may influence the size of the budget.

[4] Faced with a similar problem, Rowlands and Ketcheson (2002) include all variables in share terms.

joint OECD, UN, and World Bank conference set out 6 social goals with 16 indicators (World Bank 2001). Add to this measures of aid effectiveness -- absorptive capacity, various dimensions of policy, etc. These data requirements present a problem because, beyond the most basic measures (population, GDP per capita, openness), year and country coverage is spotty. Since we are interested in the allocation of aid between countries, we stand to lose a lot when we reduce our country coverage. In addition, the sample of countries reporting data is unlikely to be random countries with closer ties to the U.S. and Japan are more likely to collect and report data.[5] Even setting aside issues of sample coverage, using a large number of variables may not capture perceived recipient need or aid effectiveness well because of inaccuracies in reported data that are known to aid agencies and because of the complex relationship between the data and the abstract concepts we want to measure. For example, a PPP measure of GDP per capita seems a nature proxy for recipient need. But even this measure has shortcomings: it ignores important distributional issues, correlates with aid effectiveness, and may proxy for donor self-

[5]This sample selection problem can be illustrated with using infant mortality data from the WDI 2000. This variable is relatively widely available for 1970, 1972, 1977, 1980, 1982, 1987, 1990, and 1992. Looking only at these years, define the dichotomous variable $MISSING_{it}$=1 if infant mortality data is not available for country i in year t. Using a sample of all developing countries, the correlation between MISSING and U.S. trade share is −0.115 and between MISSING and U.S. bilateral aid share is −0.09. In a probit estimation with MISSING as the dependent variable, both U.S. trade share and U.S. bilateral aid share have negative estimated coefficients, significant at the 95% confidence level.

interest. These sorts of multiple correlations have plagued interpretation of results in the donor interest-recipient need literature.

The ideal **Q** would be a rating by a well-informed, humanitarian expert or organization that knows the shortcomings of official data. The rating should incorporate whatever trade-offs there may be between need and aid effectiveness. This assessment should be that of the aid community since we are not looking for "mistakes" the ADB might make in pursuing humanitarian goals but rather elements of the aid allocation process that are not based on humanitarian considerations.

A version of such a humanitarian rating is available. As discussed above, a group of small donors – Canada, Denmark, the Netherlands, Norway and Sweden – arguably pursue humanitarian goals in the allocation of their aid. Thus, we can use small donor aid share as the humanitarian rating. Since individual small donors may limit the scope of their programs (not covering every deserving country because of administrative costs), we look at the small donor aggregate. Also, because small donors may short-change large recipients to avoid putting so much of their aid money in just a few countries, we incorporate in **Q** a basic set of widely available variables including population. One of the advantages of using the small donor bilateral aid data is that they come from the OECD and are not subject to the same limited coverage or uncertain provenance of other LDC data. Another advantage is that small donors, because they are small, do not have the power to influence ADB lending significantly.[6] Any link

[6]Strang (1999) finds that the ADB's voting system reduces the voting power of small donors relative to their voting weight while increasing that of large donors. For example, in 1990, Johnson voting power indices were: Japan .174, U.S. .174, Canada .081, Denmark 0, the

between small donor bilateral allocations and ADB allocations must be caused by a third factor (recipient need) to which both respond.[7]

Donor interest variables (**Z**) present a similar set of problems. Coverage for some potentially important variables (for example, FDI) is spotty and suffers from inconsistent definitions across countries and over time. Again, the relationship between variables and donor interests may be complex and change over time. A military base in a developing country may be important to the donor at one point in time but simply an expense at another juncture. Commercial interests may hinge on expectations of future markets rather than the current reality. As above, the ideal would be a donor rating of how important a recipient country is commercially and politically.

Again, a version of these donor interest ratings is available in the form of bilateral aid shares. The literature on aid allocation finds that Japanese bilateral aid as closely reflects Japanese commercial interests and U.S. bilateral aid mirrors U.S. commercial and geopolitical interests. Japanese and U.S. bilateral aid shares are clearly not perfect measures, however. First, every aid program has some humanitarian component. Second, donor interests which bilateral aid serves may not be exactly the same as those which multilateral aid serves, i.e., a donor may

---

Netherlands 0, Norway 0, and Sweden 0.

[7]Because small donors are relatively powerless in the ADB, they need not to be totally or even mostly altruistic. Small donor aid works as a proxy for recipient need as long as it has an altruistic component and, as we will see shortly, that small donors do not cater to the narrow interests of Japan, the United States, or the ADB bureaucracy.

view bilateral and multilateral aid as substitutes rather than complements. The most obvious case is when, for political reasons, a donor cannot directly support a recipient but still wishes to provide aid in some form. It is also more likely when the donor is trying to minimize its own aid budget. This may result in a downward bias that understates the degree of donor influence (when complements remain the norm) or, in the extreme, lead to a negative link between donor bilateral aid share and ADB aid share (when substitutes are the norm).

Another important issue is the possibility that aid coordination may lead to an endogeneity problem. Multilateral agencies frequently convene donor meetings to coordinate aid policies toward particular recipients. Do we interpret high Japanese or U.S. aid shares as causing high ADB aid shares or the reverse? In fact, this should not be a problem if the small donors are humanitarian. If they participate in coordinated efforts, we interpret coordination as driven by humanitarian concerns. If they do not participate, we interpret coordination as driven by other interests.[8]

However, two more difficult issues do arise. First, Japanese and U.S. interests may coincide (e.g., a country with oil reserves and market potential Indonesia may be of interest to both) or Japan may simply follow the U.S. lead as a form of burden sharing (Hickman 1993, Katada 1997). We will not be able to tell these two apart based on bilateral aid data, complicating attribution of influence on the ADB between the two donors. However, in the Asia region, this problem is substantially reduced since Japanese interests are much more well

[8]See Arvin et al. (1998) and Rowlands and Ketcheson (2002) for empirical examinations of aid coordination.

defined.9 The second issue is whether donor aid allocations are negatively coordinated: the small donors may choose to specialize in countries that receive less aid from large donors such as Japan, the U.S. and the ADB. The limited empirical research on this topic provides no clear overall pattern.[10]

The discussion above is summarized in the following set of equations.

$$s^{ADB} = \mathbf{Q\beta_0^{ADB}} + \mathbf{Z\beta_1^{ADB}} + \delta\beta_2^{ADB} + \gamma\beta_3^{ADB} + \theta\beta_4^{ADB} + \varepsilon^{ADB}$$

$$s^{SD} = \mathbf{Q\beta_0^{SD}} + \delta + \varepsilon^{SD}$$

$$s^{US} = \mathbf{Q\beta_0^{US}} + \mathbf{Z^{US}\beta_1^{US}} + \delta\beta_2^{US} + \gamma + \varepsilon^{US}$$

$$s^{J} = \mathbf{Q\beta_0^{J}} + \mathbf{Z^{J}\beta_1^{J}} + \delta\beta_2^{J} + \theta + \varepsilon^{J}$$

---

[9]It is no coincidence that Hickman (1993) discusses Japan taking cues from U.S. aid flows in Africa and Katada (1997) in Latin America, both regions where Japanese commercial interests were quite limited at the time.

[10]Rowlands and Ketcheson (2002) examine net ODA disbursement shares to countries in Sub-Saharan Africa. Up through 1990 Dutch aid is positively related to other bilateral aid (including U.S. aid) and negative related to IMF programs while after 1990 Dutch aid is less closely linked to other bilateral aid and positively linked to presence of World Bank lending. Swedish aid is positively linked to other bilateral aid but negatively related to U.S. bilateral aid and the presence of World Bank lending in the earlier period but reverses in the later period so that the link with other bilateral aid is negative and with U.S. bilateral aid positive. Canadian aid up through 1990 is positively related to other bilateral aid but negatively related to U.S. aid and unrelated to World Bank or IMF activity but also reverses after 1990 so that the link with other bilateral aid programs is negative and with U.S. bilateral aid and World Bank lending is positive.

The variable **Q** now represents a limited set of widely available measures of recipient need/aid effectiveness. $\mathbf{Z}^{US}$ and $\mathbf{Z}^{JN}$ likewise represent a limited set of U.S. and Japanese interest variables; **Z** is simply the combination of the two. δ summarizes the unobserved component of recipient need/aid effectiveness, normalized to have a coefficient of unity in the small donor aid allocation equation; δ may enter all the equations if all donor allocations are humanitarian to some degree. γ reflects unobserved U.S. interests which influence U.S. aid allocation and may enter the ADB equation (if the U.S. influences ADB loan allocation). θ plays the same role for Japan.

The estimation strategy involves two steps. First estimate aid allocation equations for the small donors, the U.S. and Japan. Then use residuals from these estimations to proxy for δ, γ, and θ in the ADB aid allocation equation. Note that δ enters all the equations. Since orthogonality of residuals is the goal in the first stage, s^{SD} is sufficient to proxy for δ in the U.S. and Japanese equations; however, the (admittedly biased) coefficient estimates of $\boldsymbol{\beta_0}^{US}$ and $\boldsymbol{\beta_0}^{J}$ are of some interest so I use instead residuals from the small donor estimation. Estimation of the ADB allocation equation is via a FGLS panel method to allow for both heteroskedasticity across recipients and autocorrelation.[11]

[11]Autocorrelation is expected for two reasons. First, the data used are gross disbursements which are likely to be correlated over time simply because most loans disburse gradually. Second, institutional budgeting generates inertia, both for bureaucratic reasons and due to defensive lending. These sources of autocorrelation are across the institution so a single autocorrelation parameter is appropriate. This approach has advantages over fixed effects (to be added later) because it preserves some cross-sectional variation.

All data are annual. The aid share variables (ADBSHARE, SD_SHARE, US_SHARE, and JN_SHARE) are gross disbursements of official assistance drawn from the OECD's Development Assistance Committee's database (variable Total Official Gross). I use disbursements in part because the OECD only reports commitments for Official Development Assistance (ODA); loans from the ADB's hard window (OCR) are not sufficient concessional to qualify.[12] Using gross figures avoids problems with negative shares and better captures what donors can control.13 ADBSHARE is the sum of regular ADB loan disbursements (termed OCR) and the more concessional ADF. SD_SHARE is base on Canadian, Danish, Dutch, Norwegian, and Swedish data:

$$SD\_SHARE = (A^{CA}_{it}+A^{DK}_{it}+A^{NL}_{it}+A^{NO}_{it}+A^{SW}_{it})/ (\Sigma_j(A^{CA}_{jt}+A^{DK}_{jt}+A^{NL}_{jt}+A^{NO}_{jt}+A^{SW}_{jt}))$$

The **Q** variables are constructed from the Penn World Tables data. $POPSHARE_{it}$ is simply recipient i's share of the overall recipient population in year t:

$$POPSHARE_{it}=POP_{it}/\Sigma_j POP_{jt}$$

POPS2 is the square of POPSHARE and POP_GROW is the population growth rate. GDPPCAP is GDP per capita (in PPP terms), GDP2 is the square and GDPPGROW is the annual growth rate of GDP per capita. OPEN is the standard index of openness, namely the some of exports and imports divided by GDP. W_TRD_2 is world trade share lagged by two years. It is constructed from other variables (OPEN*GDPPCAP*POP). UHAT_SD, UHAT_US, and UHAT_JN are the residuals from estimating the bilateral aid allocation equations. Import and

[12]I am current assembling a database on ADB commitments drawn from ADB annual reports.

[13]Even gross disbursement has a few negative entries for countries in exceptional circumstances (e.g., having their assets seized by other countries). In these few cases, gross disbursements is set to 0.

export data for the U.S. and Japan are extracted from the IMF Direction of Trade Statistics, converted to shares and lagged by two years.

IV. Estimation Results

The first three tables report results for the first step of the estimation process. Table 1 indicates that small donor shares are largely determined by country size with aid peaking at a 20% share. China and India both exceed this level. The population growth rate does not enter significantly (or with a reasonable sign); GDP per capita does enter with the expected sign (poor countries getting more) but is also not statistically significant at standard levels. Economic growth appears immaterial; more open economies get more small donor aid but again the association is not statistically significant. World trade share is also insignificant.[14] Overall, the estimated equation accounts for 79% of the variation in small donor share.

Table 2 reports estimation results for the U.S. aid allocation equation. Country size is again a major factor with aid peaking at an 18% regional population share, again a level exceeded only by China and India. The population growth rate does not enter significantly (or with a reasonable sign); GDP per capita, however, does enter significantly with the expected sign (ceteris paribus, poor countries getting a greater share). Again, economic growth appears immaterial and more open economies get more aid but not significantly more. World trade share has a positive influence and is marginally significant (90% confidence level). Trade with the U.S. is broken down into export share (share of total U.S. export market) and import share (share

[14]As with all trade measures, world trade share is lagged by two years to reduce the possibility of endogeneity. See Arvin and Baum (1997) and Arvin et al. (2000).

of total U.S. import market); both coefficients are positive, that for exports is also significant. The final variable is the proxy for δ, unobserved humanitarian/aid effectiveness factors. The coefficient estimate is positive and significant at the 95% confidence level. Interestingly, much less of the variation in U.S. share is captured by the estimated equation as compared with the small donor equation (47% v. 79%).

Table 3 reports results for the Japanese aid allocation equation. Population plays a less important role than in the previous equations with population share and population share squared jointly significant. The maximum aid share is reached at a population share around 8%, just above Indonesia's. Population growth rate, again with an odd negative sign, is insignificant. GDP per capita appears to play a larger role in Japanese aid allocation within Asia; ceteris paribus, aid share declines with increasing GDP per capita though at a diminishing rate.[15] Growth and openness again are not significant determinants of Japanese bilateral aid shares but world trade share does have a significant influence on aid allocation. Mirroring the U.S. equation, export share enters positively and significantly; import share (negative) is not significant. Finally, the proxy for δ enters with a negative sign but is not statistically significant. The estimated equation accounts 63% of the variation in Japanese aid shares, somewhat less than for small donors and more than for the U.S.

Table 4 reports the results for a panel estimation of ADB loan share using feasible GLS. The correlation coefficient of 0.64 indicates a high degree of autocorrelation within individual

[15]Aid share reaches a minimum at a GDP per capita of approximate $10,000, a figure reached only by Singapore in the late 1980s when Singapore was still receiving some disbursements from Japan.

recipient time series. Population is again (jointly) significant with ADB loan share increasing up to a population share of 10%. Most other direct indicators (population growth rate, GDP per capita, growth, and openness) are insignificant. World trade share, however, is significant and positive; after controlling for size and income level, countries that trade more (in absolute terms since we have also controlled for openness) get a larger share of the ADB loans.[16] The proxy for δ (unobserved need/aid effectiveness) enters positively but the coefficient estimate is both statistically insignificant and small relative to that in the U.S. equation (0.033 v. 0.244). The coefficient estimate for U.S. export share is positive and marginally significant; the other donor trade indicators are not significant.

Uhat_US, the proxy for unobserved U.S. interests (γ) enters positively and significantly, indicating that ADB loan share allocations are consistent with U.S. interests as reflected in the distribution of U.S. bilateral aid. The same holds for Japan; the coefficient on the proxy for unobserved Japanese interests (θ) is positive and significant. The coefficient for Japan is approximately 50% larger than that for the U.S. and the relationship is more consistent. This apparent difference between Japanese and U.S. influence is somewhat reduced when we look at a simple simulation. According to the estimated equation, if an otherwise average recipient experiences an increase in θ (unobserved Japanese interests) of one standard deviation (0.0424), its ADB loan share will increase by 13 percent from a share of 5.87 percent to a share of 6.66 percent. A one standard deviation (0.0545) increase in δ (unobserved U.S. interests) results in a 10 percent increase in ADB loan share from a share of 5.87 percent to a share of 6.49 percent.

[16]Including world trade avoids potentially spurious links between ADB share and U.S. and Japanese trade shares.

The results above include both China and India in the sample with ADB shares of 0 in years they received no money. China did not borrow from the ADB until 1986 (disbursements starting in 1987), largely because of U.S. pressure. India has had a larger role but (Japanese) fears of the ADB lending primarily to India (based on size and poverty levels) delayed lending to India, also until 1987. Clearly, arguments can be made both ways about whether these two countries should be in or out of the sample. Table 5 reports results excluding China; Table 6 excludes China prior to 1987; Table 7 excludes both China and India prior to 1987. These tables illustrate that population coefficient estimates are sensitive to these variations but that other results are relatively robust.

One interesting difference with China excluded (either totally or prior to 1987) is the change in the magnitude of the U.S. and Japanese influence. In Tables 5 and 6, the coefficient for UHAT_JN is more than twice the magnitude as UHAT_US. Repeating the calculations above, for Table 6 a one standard deviation increase in Japanese interests leads to a ADB loan share increase of 17 percent from a share of 5.87 percent to a share of 6.89 percent. The comparable figures for the U.S. are a 10 percent increase in ADB loan share from a share of 5.87 percent to a share of 6.46 percent.

IV. Conclusion

This paper examines the influence of Japan and the United States over the geographic distribution of ADB loans. Analysis of panel data for all ADB borrowing countries from 1968 to 1992 reveals evidence of substantial donor influence over the allocation of resources. The equations estimated find little evidence of a humanitarian or economic efficiency basis for the

disbursement of ADB funds, apart from a link with population.[17] Overall Japanese influence is some what greater and more consistent than U.S. influence. This pattern is amplified if we do not consider China and India during the period when they did not have access to ADB funds. This suggests that U.S. influence focuses more on access (denying ADB funds to countries like China) while Japan has more influence on the level of lending.

Fleck and Kilby (2001) examine similar issues with the World Bank. U.S. interests appear to have a substantial impact on the allocation of World Bank loans, roughly on par with humanitarian factors (exclusive of population size). The ADB case differs in that humanitarian factors other than population size play no apparent role – other than country size, donor interests appear to be the organizing principal for ADB lending. In this sense, donor interests more heavily influence the ADB than the World Bank.

Rodrik (1995) presents an interesting economic case for the existence of a multilateral aid agency base on it independence from donors. Independence allows a multilateral agency to allocate resources more efficiently and give credible policy advice; independence also strengthens the agency's information signaling role (especially when its own funds are at risk). However, Rodrik does not explain why regional development banks persist (and even multiply); certainly the policy and information functions are better implemented by one agency than by several. The justification also does not explain donor influence in MDBs. The findings of this

[17]Note, however, that the estimation combines ADB and ADF funds. Chang et al. (1999) present Effective Development Assistance (EDA) which incorporates the degree of concessionality. Although this would be a more appropriate measure, the data are not available disaggregated by individual donors.

paper further complicate the story. The degree of influence that Japan and the U.S. enjoy in the Asian Development Bank justifies the existence of regional development banks on political grounds but calls into question their relative merits on economic grounds.

References

Akins, Michael E., 1981. United States Control over World Bank Group Decision-making. PhD Dissertation, University of Pennsylvania, Philadelphia.

Alesina, A., Dollar, D., 2000. Who Gives Foreign Aid to Whom and Why? Journal of Economic Growth 5, 33-63.

Arvin, B. Mak, Baum, Christopher F., 1997. Tied and United Foreign Aid: A Theoretical and Empirical Analysis. Keio Economic Studies 34(2), 71-9.

Arvin, B. Mak, Cater, Bruce, Choudhry, Saud, 2000. A Causality Analysis of Untied Foreign Assistance and Export Performance: The Case of Germany. Applied Economic Letters 7(5), 315-9.

Arvin, B. M., Savage, N., and Scigliano, M., 1998. Herd Instinct and Offsetting Behaviour in the Foreign Aid Contributions of G7 Countries. Scandinavian Journal of Development Alternatives and Area Studies 17(4), 83-90.

Ball, R., Johnson, C., 1996. Political, Economic, and Humanitarian Motivations for PL 480 Food Aid: Evidence from Africa. Economic Development and Cultural Change 44(3), 515-37.

Burnside, C., Dollar, D., 2000. Aid, Policies and Growth. American Economic Review 90(4),

847-68.

Chang, C., Fernandez-Arias, E., Serven, L., 1999. Measuring Aid Flows: A New Approach. Policy Research Working Paper 2050. Washington, DC: World Bank, Development Research Group.

Clad, James, 1988. Vote-buying in Manila; Japan, the US and Sweden to boost ADB stakes. Far Eastern Economic Review 141(28), July 14, 1988, 56.

Dutt, Nitish, 1997. The United States and the Asian Development Bank. Journal of Contemporary Asia 27, 71-84.

Dutt, Nitish, 2001. The US and the Asian Development Bank: Origins, Structure and Lending Operations. Journal of Contemporary Asia 31(2), May, 241.

The Economist (US), 1987. Power play. (Politics at Asian Development Bank) 303, May 2, 90.

The Economist (US), 1988. No taxation without representation. (Asian Development Bank meeting) 307(7549), May 7, 1988, 72.

The Economist (US), 1989. Japanese sway. (Asian Development Bank) 311(7602), May 13, 1989, 85.

Eggleston, R. C., 1987. Determinants of the Levels and Distribution of PL 480 Food Aid: 1955-79. World Development 15(6), 797-808.

Feeny, Simon, McGillivray, Mark, 2002. Modeling Intertemporal Aid Allocation to Papua New Guinea in Arvin, B. Mak, ed., New Perspectives on Foreign Aid and Economic Development, Praeger, Westport, CT.

Fleck, Robert K., Kilby, Christopher, 2001, World Bank Independence: A Model and Statistical Analysis of U.S. Influence. Vassar Working Paper Series.

Frey, B., Schneider, F., 1986. Competing Models of International Lending Activity. Journal of Development Economics 20, 225-45.

Hickman, J, 1993. Cue Taking and the Distribution of Japanese ODA among African Countries. African Development Review 5(1), 62-69.

Katada, S. N., 1997. Two Aid Hegemons: Japanese-US Interaction and Aid Allocation to Latin America and the Caribbean. World Development 25(6), 931-45.

Krasner, S. D., 1981. Power Structures and Regional Development Banks. International Organization 35(Spring), 303-28.

McKinlay, R. D., 1978. The German Aid Relationship: A Test of the Recipient Need and the Donor Interest Models of the Distribution of German Bilateral Aid 1961-1970. European Journal of Political Research 6, 235-57.

McKinlay, R. D., Little, R., 1977. A Foreign Policy Model of U.S. Bilateral Aid Allocation. World Politics 30(1), 58-86.

McKinlay, R. D., Little, R. 1978A. A Foreign Policy Model of the Distribution of British Bilateral Aid, 1960-70. British Journal of Political Science 8, 313-32.

McKinlay, R. D., Little, R., 1978B. The French Aid Relationship: A Foreign Policy Model of the Distribution of French Bilateral Aid, 1964-70. Development and Change 9, 459-78.

McKinlay, R. D., Little, R., 1979. The US Aid Relationship: a Test of the Recipient Need and the Donor Interest Models. Political Studies 27(2), 236-50.

Meernik, J., Krueger, E., Poe, S., 1998. Testing Models of U.S. Foreign Policy: Foreign Aid During and After the Cold War. The Journal of Politics 60, 63-85.

O'Connell, S. A., Soludo, C. C., 2001. Aid Intensity in Africa. World Development 29(9), 1527-52.

Pasquarello, T. E., 1988. Human Rights Practices and U.S. Bilateral Aid Allocation to Africa, in Cingranelli, D. L., ed., Human Rights: Theory and Measurement, St. Martin's Press, New York, 236-54.

Rodrik, D., 1995. Why is there Multilateral Lending? NBER Working Paper # 5160.

Rowley, Anthony, 1992. The politics of who gets what. (Asian Development Bank's lending policies) (Focus: Asian Development Bank 1992). Far Eastern Economic Review 155(18), May 7, 52.

Rowlands, Dane, Ketcheson, Ian, 2002. Multilateral Aid Coordination by the International Financial Institutions: An Examination of Canadian Development Assistance to Sub-Saharan Africa, in Arvin, B. Mak, ed., New Perspectives on Foreign Aid and Economic Development, Praeger, Westport, CT.

Sender, Henny, 1993. More for less. (U.S. and Japan disagree over the Asian Development Bank). Far Eastern Economic Review, 156(20), May 20, 52-3.

Trumbull, W. N., Wall, H. J., 1994. Estimating Aid-Allocation Criteria with Panel Data. The Economic Journal 104, 876-82.

Schraeder, P., Hook, S., Taylor, B., 1998. Clarifying the Foreign Aid Puzzle: A Comparison of American, Japanese, French, and Swedish Aid Flows. World Politics 50, 294-323.

Shapouri, S., Missiaen, M., 1990. Food Aid: Motivation and Allocation Criteria. Foreign Agricultural Economic Report Number 240 (U.S. Department of Agriculture, Economic Research Service, February).

Shishido, S., Minato, N., 1994. A Comparative Study of Official Development Assistance by Major Industrial Countries: An Econometric Analysis. The Developing Economies 32(1), 3-12.

Stokke, O., ed., 1989. Western Middle Powers and Global Poverty: The Determinants of the Aid Policies of Canada, Denmark, the Netherlands, Norway and Sweden. The Scandinavian Institute of African Studies, Uppsala.

Strang, J. R., 1999. State Power in a Multilateral Context: Voting Strength in the Asian Development Bank. International Interactions 25(3), 265-86.

Upton, Barbara, 2000. The Multilateral Development Banks: Improving U.S. Leadership, The Washington Papers #178, Praeger, Westport, CT.

Wan, Ming, 1995. Japan and the Asian Development Bank. Pacific Affairs 68(4), 509-28.

Weck-Hannemann, H., Schneider, F., 1991. Determinants of Foreign Aid Under Alternative Institutional Arrangements, in Vaubel, R., Willett, T. D., eds., The Political Economy of International Organizations: A Public Choice Approach, Westview Press, Boulder, 245-66.

Wihtol, Robert, 1988. The Asian Development Bank and rural development: Policy and practice, St. Martin's Press, New York.

Wittkopf, E. R., 1972. Western Bilateral Aid Allocations: A Comparative Study of Recipient State Attributes and Aid Received, Sage Publications, Beverly Hills.

World Bank, 2001. Development Goals. http://www.worldbank.org/data/dev/devgoals.html

Yasutomo, Dennis T., 1983. Japan and the Asian Development Bank, Studies of the East Asian Institute, Columbia University, Praeger, New York.

Yasutomo, Dennis T., 1993A. Japan and the Asian Development Bank: Multilateral Aid Policy in Transition, in Koppel, Bruce M. and Orr, Robert M., Jr., eds., Japan□s foreign aid: Power and policy in a new era. Politics in Asia and the Pacific: Interdisciplinary Perspectives series, Westview Press, Boulder, 305-40.

Yasutomo, Dennis T., 1993B. Japan and the New Multilateralism, in Curtis, Gerald L., ed., Japan□s foreign policy after the Cold War: coping with change. Studies of the East Asian Institute, M. E. Sharpe, Armonk, NY, 323-46.

Yasutomo, Dennis T., 1995. The New Multilateralism in Japan's Foreign Policy. St. Martin's Press, New York.

Table 1: Small Donor Share (spec4.do, equation 1)

Source	SS	df	MS		
Model	2.03984056	8	.25498007	Number of obs	364
Residual	.537361243	355	.001513694	F(8, 355)	168.45
Total	2.5772018	363	.007099729	Prob > F	0.0000
				R-squared	0.7915
				Adj R-squared	0.7868
				Root MSE	.03891

sd_share	Coef.	Std. Err.	t	P>|t|	[95% Conf.	Interval]
popshare	3.102943	.1143134	27.144	0.000	2.878127	3.32776
pops2	-7.000156	.2475021	-28.283	0.000	-7.48691	-6.513401
pop_grow	-.1822827	.1878275	-0.970	0.332	-.5516772	.1871117
gdppcap	-2.48e-06	4.17e-06	-0.595	0.552	-.0000107	5.72e-06
gdp2	-1.81e-11	3.27e-10	-0.055	0.956	-6.62e-10	6.26e-10
gdppgrow	-.0044707	.0365288	-0.122	0.903	-.0763108	.0673694
open	.0000832	.0000551	1.511	0.132	-.0000251	.0001916
w_trd_2	-.0628752	.0724029	-0.868	0.386	-.2052677	.0795173
_cons	.0004481	.0078042	0.057	0.954	-.0149001	.0157964

Table 2: U.S. Share (spec4.do, equation 5)

Source	SS	df	MS		
Model	.975294308	11	.088663119	Number of obs	364
Residual	1.08125388	352	.003071744	F(11, 352)	28.86
Total	2.05654819	363	.005665422	Prob > F	0.0000
				R-squared	0.4742
				Adj R-squared	0.4578
				Root MSE	.05542

us_share	Coef.	Std. Err.	t	P>|t|	[95% Conf.	Interval]
popshare	1.469276	.1642572	8.945	0.000	1.146227	1.792325
pops2	-4.066211	.3577108	-11.367	0.000	-4.76973	-3.362692
pop_grow	-.4200176	.2683776	-1.565	0.118	-.9478428	.1078077
gdppcap	-9.87e-06	6.08e-06	-1.625	0.105	-.0000218	2.08e-06
gdp2	-5.81e-11	4.67e-10	-0.125	0.901	-9.77e-10	8.60e-10
gdppgrow	-.0301286	.052076	-0.579	0.563	-.1325478	.0722905
open	3.12e-06	.0000822	0.038	0.970	-.0001585	.0001647
w_trd_2	.2908735	.1616361	1.800	0.073	-.0270203	.6087674
us_ex_2	.2552387	.0467208	5.463	0.000	.1633517	.3471258
us_im_2	.0101783	.0747211	0.136	0.892	-.1367775	.1571342
uhat_sd	.2439485	.076096	3.206	0.001	.0942885	.3936086
_cons	.0356676	.011184	3.189	0.002	.0136718	.0576635

Table 3: Japanese Share (spec4.do, equation 6)

```
  Source |       SS       df       MS                  Number of obs =     364
---------+------------------------------                F( 11,   352) =   54.05
   Model |  1.10437829    11  .100398026                Prob > F      =  0.0000
Residual |  .653800778   352  .001857389                R-squared     =  0.6281
---------+------------------------------                Adj R-squared =  0.6165
   Total |  1.75817907   363  .004843469                Root MSE      =   .0431

------------------------------------------------------------------------------
jn_share |      Coef.   Std. Err.       t     P>|t|       [95% Conf. Interval]
---------+--------------------------------------------------------------------
popshare |   .2067056   .1569652      1.317   0.189      -.1020019    .5154131
   pops2 |  -1.313455   .3184142     -4.125   0.000      -1.939689   -.6872215
pop_grow |  -.2484417   .2082719     -1.193   0.234      -.6580555    .1611721
 gdppcap |  -.0000243   4.67e-06     -5.206   0.000      -.0000335   -.0000151
    gdp2 |   1.21e-09   3.66e-10      3.309   0.001       4.92e-10    1.93e-09
gdppgrow |   .0057567   .0405474      0.142   0.887       -.073989    .0855024
    open |  -.0000325   .0000635     -0.512   0.609      -.0001575    .0000924
 w_trd_2 |   1.033804   .1669829      6.191   0.000       .7053948    1.362214
 jn_ex_2 |   .1979573   .0451925      4.380   0.000        .109076    .2868386
 jn_im_2 |  -.0269356   .0720413     -0.374   0.709      -.1686211    .1147498
 uhat_sd |  -.0261792   .0611244     -0.428   0.669      -.1463941    .0940357
   _cons |   .0523268   .0086764      6.031   0.000       .0352628    .0693908
------------------------------------------------------------------------------
```

Table 4: ADB Share (spec4.do, equation 7)

```
Cross-sectional time-series FGLS regression
Coefficients:  generalized least squares
Panels:        homoscedastic
Correlation:   common AR(1) coefficient for all panels  (0.6376)
No. est. covariances      =         1         No. of obs           =       342
No. est. autocorrelations =         1         No. of groups        =        19
No. est. coefficients     =        16         No. of time periods  =        23
                                              chi2(14)             =    103.15
Log Likelihood            =  837.2845         Pr > chi2            =    0.0000
------------------------------------------------------------------------------
adbshare |      Coef.   Std. Err.       z     P>|z|       [95% Conf. Interval]
---------+--------------------------------------------------------------------
popshare |   .4144144   .2712423      1.528   0.127      -.1172108    .9460396
   pops2 |   -2.10597   .5896896     -3.571   0.000       -3.26174   -.9501997
pop_grow |  -.0102469   .1481586     -0.069   0.945      -.3006323    .2801386
 gdppcap |  -1.12e-06   9.79e-06     -0.115   0.909      -.0000203    .0000181
    gdp2 |  -5.55e-10   7.01e-10     -0.792   0.428      -1.93e-09    8.18e-10
gdppgrow |   .0114351   .0303534      0.377   0.706      -.0480565    .0709268
    open |  -.0001291   .0001135     -1.137   0.256      -.0003516    .0000935
 w_trd_2 |    .686798   .2385706      2.879   0.004       .2192083    1.154388
 uhat_sd |   .0333623   .0681842      0.489   0.625      -.1002762    .1670009
 us_ex_2 |   .0977577   .0545591      1.792   0.073      -.0091762    .2046916
 us_im_2 |  -.1539347   .0973313     -1.582   0.114      -.3447005    .0368311
 uhat_us |   .1129984   .0465346      2.428   0.015       .0217923    .2042046
 jn_ex_2 |   .0603843   .0875777      0.689   0.491      -.1112649    .2320336
 jn_im_2 |   .1271903   .1065567      1.194   0.233      -.0816569    .3360375
 uhat_jn |    .185772   .0532839      3.486   0.000       .0813376    .2902065
   _cons |   .0412701   .0136786      3.017   0.003       .0144605    .0680797
------------------------------------------------------------------------------
```

Table 5: ADB Share with China excluded (spec5.do, equation 4)

Cross-sectional time-series FGLS regression
Coefficients: generalized least squares
Panels: homoscedastic
Correlation: common AR(1) coefficient for all panels (0.5818)

No. est. covariances	= 1	No. of obs	= 319
No. est. autocorrelations	= 1	No. of groups	= 18
No. est. coefficients	= 16	No. of time periods	= 23
		chi2(14)	= 156.12
Log Likelihood	= 779.7129	Pr > chi2	= 0.0000

adbshare	Coef.	Std. Err.	z	P>|z|	[95% Conf.	Interval]
popshare	1.77718	.5416969	3.281	0.001	.7154739	2.838887
pops2	-6.927561	1.540844	-4.496	0.000	-9.947559	-3.907562
pop_grow	-.0107268	.1516357	-0.071	0.944	-.3079274	.2864737
gdppcap	1.64e-06	.00001	0.163	0.870	-.000018	.0000213
gdp2	-8.72e-10	6.99e-10	-1.248	0.212	-2.24e-09	4.98e-10
gdppgrow	-.0019371	.0318864	-0.061	0.952	-.0644333	.0605591
open	-.0000539	.0001071	-0.503	0.615	-.0002637	.000156
w_trd_2	.9111371	.3127876	2.913	0.004	.2980848	1.524189
uhat_sd	-.0032798	.0700074	-0.047	0.963	-.1404918	.1339322
us_ex_2	.0751709	.1163412	0.646	0.518	-.1528536	.3031954
us_im_2	-.1074238	.1173355	-0.916	0.360	-.3373972	.1225495
uhat_us	.0982823	.0471403	2.085	0.037	.005889	.1906756
jn_ex_2	-.1579223	.1010361	-1.563	0.118	-.3559494	.0401047
jn_im_2	.1446255	.137703	1.050	0.294	-.1252675	.4145185
uhat_jn	.2092627	.062754	3.335	0.001	.0862672	.3322582
_cons	.0143036	.0154364	0.927	0.354	-.0159512	.0445585

Table 6: ADB Share with China excluded before 1987 (spec6.do, equation 5)

```
Cross-sectional time-series FGLS regression
Coefficients:  generalized least squares
Panels:        homoscedastic
Correlation:   common AR(1) coefficient for all panels  (0.5722)
No. est. covariances      =         1         No. of obs           =       325
No. est. autocorrelations =         1         No. of groups        =        19
No. est. coefficients     =        16         No. of time periods  =        23
                                              chi2(14)             =    145.17
Log Likelihood            =  788.5046         Pr > chi2            =    0.0000
------------------------------------------------------------------------------
adbshare |      Coef.   Std. Err.       z     P>|z|       [95% Conf. Interval]
---------+--------------------------------------------------------------------
popshare |   .5572283   .2816594      1.978   0.048        .005186     1.10927
   pops2 |  -3.237719   .6921007     -4.678   0.000      -4.594211   -1.881226
pop_grow |  -.0297164   .1546389     -0.192   0.848      -.3328031    .2733703
 gdppcap |  -6.37e-06   9.33e-06     -0.683   0.495      -.0000246    .0000119
    gdp2 |  -3.15e-10   6.53e-10     -0.483   0.629      -1.60e-09    9.65e-10
gdppgrow |   .0077283   .0323869      0.239   0.811      -.0557489    .0712055
    open |  -.0001001   .0001058     -0.946   0.344      -.0003074    .0001072
 w_trd_2 |    1.23813    .270466      4.578   0.000       .7080265    1.768234
 uhat_sd |   .0198248   .0692929      0.286   0.775      -.1159867    .1556363
 us_ex_2 |   .0888676   .1167768      0.761   0.447      -.1400107     .317746
 us_im_2 |  -.1351361   .1044146     -1.294   0.196      -.3397849    .0695127
 uhat_us |   .1078337   .0475785      2.266   0.023       .0145816    .2010859
 jn_ex_2 |  -.0800303   .0946396     -0.846   0.398      -.2655205    .1054599
 jn_im_2 |   .0724643   .1186894      0.611   0.542      -.1601627    .3050913
 uhat_jn |   .2402834   .0608381      3.950   0.000       .1210429    .3595239
   _cons |   .0349137   .0131376      2.658   0.008       .0091644     .060663
------------------------------------------------------------------------------
```

Table 7: ADB Share with China and India excluded before 1987
(spec6.do, equation 6)

```
Cross-sectional time-series FGLS regression
Coefficients:  generalized least squares
Panels:        homoscedastic
Correlation:   common AR(1) coefficient for all panels  (0.5860)
No. est. covariances      =         1         No. of obs           =       308
No. est. autocorrelations =         1         No. of groups        =        19
No. est. coefficients     =        16         No. of time periods  =        23
                                              chi2(14)             =    147.50
Log Likelihood            =  750.2243         Pr > chi2            =    0.0000
------------------------------------------------------------------------------
adbshare |      Coef.   Std. Err.       z     P>|z|       [95% Conf. Interval]
---------+--------------------------------------------------------------------
popshare |   1.235258   .3341682      3.697   0.000       .5803004    1.890216
   pops2 |  -4.604513   .7770914     -5.925   0.000      -6.127584   -3.081442
pop_grow |  -.0316465   .1526102     -0.207   0.836      -.3307569     .267464
 gdppcap |  -7.18e-06   9.55e-06     -0.752   0.452      -.0000259    .0000115
    gdp2 |  -3.35e-10   6.68e-10     -0.501   0.616      -1.64e-09    9.74e-10
gdppgrow |   .0055249   .0324194      0.170   0.865      -.0580159    .0690657
    open |  -.0000351   .0001079     -0.325   0.745      -.0002465    .0001764
 w_trd_2 |   1.181292   .2851077      4.143   0.000       .6224913    1.740093
 uhat_sd |   .0940566   .0839629      1.120   0.263      -.0705077    .2586209
 us_ex_2 |   .1456177   .1223441      1.190   0.234      -.0941724    .3854078
 us_im_2 |  -.0481362   .1090547     -0.441   0.659      -.2618796    .1656071
 uhat_us |   .0920687    .049351      1.866   0.062      -.0046574    .1887948
 jn_ex_2 |  -.1552583   .0976025     -1.591   0.112      -.3465556    .0360391
 jn_im_2 |  -.0181107   .1234324     -0.147   0.883      -.2600337    .2238123
 uhat_jn |   .2115539   .0630785      3.354   0.001       .0879222    .3351855
   _cons |   .0256366   .0135696      1.889   0.059      -.0009593    .0522326
------------------------------------------------------------------------------
```