

Determinants of Japanese aid allocation: An econometric analysis

By

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Abstract:

Economic self-interest and politico-strategic and humanitarian concerns motivate donor countries in their development assistance policies. A large amount of literature has pointed out that either economic self-interest or political self-interest played a pivotal role in the early phases of foreign aid programmes of many donors. Currently, almost all donors include humanitarian assistance in explaining their aid motives. We investigate how Japanese aid allocation policies have changed over the time and also identify empirically the major determinants of aid allocation. It is found from the empirical evidence that Japan takes national interest as well as recipient country needs into account in allocating their aid. The nature of Asian biasness in Japanese aid may continue given the high emphasis on national economic and security interests. Given the historical trend one can conclude that the same determinant factors may keep on playing vital roles in aid allocation decision-making at least for some years to come even though there has been an increased call for more assistance to poor regions.

Key words: Japanese ODA policy, determinants of Japanese aid allocation, cross-sectional analysis, donor interest, recipient need

JEL classification: F35, C21, C23,

1. Introduction

Economic self-interest and politico-strategic and humanitarian concerns motivate developed countries in their development assistance policies. More specifically these include promotion of trade, direct foreign investments, image-building of the donor in the international arena, national security, as well as democracy and civil liberties in recipient countries. In addition, relationships derived from past colonial ties often influence aid flows positively (Alesina and Dollar, 1998: 1; Todaro and Smith, 2003: 653). An abundant amount of literature has pointed out that either economic self-interest or political self-interest has played a pivotal role in the early phases of foreign aid programmes of many donors. For instance, the United States used her aid

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programmes as strategic tools to halt the former Soviet Union in its tracks throughout the developing world in the 1940s and 1950s (Orr, 1990: 104). Japan used aid as an important instrument in the re-establishment of her trade and investment in the 1950s and 1960s (Hasegawa, 1975: 3; Ozawa, 1989: 95; Koppel and Orr, 1993: 353, Rix, 1993: 18, Tisch and Wallace, 1994: 6, and MOFA, 2002²). However, in an attempt to respond to international criticism and also due to many global-level initiatives including the Millennium Development Goals, rich countries have pledged to increase assistance to low-income countries and also have changed their aid policies to certain extent. Assistance has been reaffirmed in various forums such as the Doha ministerial declaration of the WTO meeting in 2001 and the World Summit on Sustainable Development in Johannesburg in 2002 (UNDP, 2003: 145)³.

Currently, almost all donors mention humanitarian assistance in explaining their aid motives. Japan is formulating a new ODA charter and it has indicated in its draft ODA charter that Japan seeks a greater role in promoting economic development in developing countries. It is also said that the new draft is significantly different from the old charter enacted in 1992. Whatever the policies mentioned in documents, however, donors' motives are sometimes suspected. Japanese aid allocation is not free of criticism and it is argued that Japan's aid policy is simply a continuation of her domestic post-war economic recovery strategy; that is, concern for her domestic prosperity and security.

Whatever the reasons given above, Japan as one of the largest donor countries in the world, making ODA contributions to more than 150 developing countries. She provided a peak of \$15.3 billion in foreign assistance in 1999 (0.35 per cent of GNP), perhaps the highest amount among all the industrial countries (Yamashita and Khachi, 2003: 1). This is above the average of 0.29 per cent for all industrial countries, though it is well below the internationally agreed United Nations target of 0.7 per cent. Due to the prolonged economic slump, however, the ODA budget was slashed by 9.4 per cent in 2003 following an 11.9 per cent drop in 2002. But it is important to look at how Japanese aid policies have changed over time and what factors really determine the allocation of Japanese funds given its huge aid package. To the authors' knowledge, there are few studies available on Japanese aid allocation using a long sample period with cross country data. We hope this empirical study will provide a comprehensive understanding of the aid allocation behaviour of Japan. The study will also shed light on some possible future scenarios. The objectives of this paper are: (1) to briefly explain how Japanese aid allocation policies changed over the time; (2) to identify major determinants of Japanese bilateral aid allocation; and (3) to evaluate the stated objectives mentioned in various aid policy documents versus their actual achievements. The paper is organized as follows. Following this introduction, section 2 presents briefly the Japanese aid allocation policy, its evolution and regional distribution. Section 3 furnishes a review of the existing

² The Final Report of the Second Consultative Committee on ODA Reform of Japanese Government is available at <http://www.mofa.go.jp/policy/oda/reform/report0203.html>. Accessed date is 20 December 2002.

³ The Monterrey Consensus too acknowledged the need for increased assistance by developed countries and urges them to make concerted effort to maintain or reach the aid target of 0.7 per cent of GNP set in 1970 by the United Nations.

literature on aid allocation, while section 4 presents the specifications of the econometric model estimation. The interpretations of the results together with the concluding remarks are made available in the final section.

2. Japanese aid allocation, its evolution and regional distribution

This section briefly reviews the evolution of Japan's aid policy, its relative size and regional distribution.

Early stage of Japanese aid: 1950s and 1960s

Japan commenced her development assistance programmes through technical assistance in 1954, just after the joining of Colombo Plan⁴. Japan joined the Colombo Plan on 6 October 1954 with a contribution of \$50,000, while still receiving economic assistance from the World Bank and the US⁵. It was as a member of this organisation that Japan initiated its foreign assistance programme (Ratnayaka, 2003). In 1958, a first ODA loan of Yen18 billion was extended to India and grant aid and food aid started in 1968. At its inception Japanese aid started from her post-war economic recovery strategy by war reparation negotiations or economic cooperation with the Asian nations Japan had occupied during World War II. In 1954, the Japan-Burma Peace Treaty and Agreement on Reparations and Economic Cooperation was signed. In 1955 a reparations department was established by the Ministry of Foreign Affairs in its Asian Affairs Bureau. Reparations agreements were signed between Japan and Philippines in 1956 and between Japan and Indonesia in 1958. An agreement was also signed with Thailand and later on special aid packages were extended to Singapore, Vietnam, and Malaysia. Japanese aid in the 1950s was heavily linked with her economic benefits: expansion of the export market, assurance of the inflow of raw materials for expanding domestic companies and supporting the participation of Japanese companies in many Asian countries. Though the sum of reparation expenditure was only about \$1 billion over 20 years, it contributed significantly to pursue her economic interest (Brooks and Orr, 1985: 324). At the same time the arrangements helped Southeast Asian countries to increase their capacity and to accelerate their economic development. So, the aid policy of Japan in the 1950s and 1960s can be seen simply from her economic interest in the post war period and not from Japan's overall foreign policy or the inherent aid philosophy that came to prominence in the 1970s.

Japanese aid in the 1970s and 1980s

By 1978, Japan appeared as a major bilateral donor in Asia and by the year 1989, Japan emerged as the number one donor in the world with a net disbursement of \$8.965 billion (Association for Promotion of International Cooperation, 1991:61). Since then, with the natural ups or downs of her position among development

⁴ The Colombo Plan was launched in 1951 and takes its name from Sri Lanka's capital where the plan was formulated and established (Arnold, Guy (1996), Historical Dictionary of Aid and Development Organisation, Lanham, Maryland: The Scarecrow Press. P. 35).

⁵ Japan received a total of \$862.9 million from the World Bank to finance its 31 projects in 13 years (from 1952 to 1966) and it became the 11th country to graduate in November 1966.

assistance committee (DAC) countries, Japan has maintained her position as a leading donor in the world. Of the policy changes during the period under review in this study, the first policy change came in the early 1970s, when Japan had to revise her foreign policy because of various international crises. The first one is the oil embargo by Organization for Petroleum Exporting Countries (OPEC) in 1973 which severely affected Japan. The oil crisis stimulated Japan to redesign her foreign policy to secure a steady supply of energy and other resources during this period. Aid was utilized as an essential instrument to protect diplomatic interests with resource-rich countries outside of Asia. In addition, Japan had to balance between the resource-rich Middle East countries and Israel and her western alliance. The oil crisis also resulted in Japan's globalization of her aid allocation and expansion into new regions such as Africa, Latin America, and Middle East. The initial share for the new regions accounted for about one third of Japan's total aid.

Apart from the oil crisis other factors that affected general foreign policy as well as aid policy in the 1970s were the relationship with the US, pressure from the international community (especially from the US and other DAC countries) to increase the aid budget and her image question in the global environment. Japan became conscious that she would have to give more weight to the US-Japan relationship because of political and security reasons as well as for the expansion of her international economic activities. Insecurity on the Korean peninsula, instability in China, and the intentions of the Soviet Union in Asia became increasing security concerns for the country (Koppel and Orr, 1993: 342). Moreover Japan's trade with the US continued to increase. What the US sought from Japan was her participation in a share of the global security objectives of the western alliance. Given this situation, Japan began to define her aid programme with broadly defined political and security objectives paving the way for aid to enter into the foreign policy framework of Japan.

After the mid 1970s, the Association for Southeast Asian Nations (ASEAN) entered as a new element of Japan's Southeast Asian policy framework equation. Japan's interest in the Southeast Asian region began before World War II and it further intensified given the formation of ASEAN in 1967. Japan has long held the philosophy that her security and economic prosperity is rooted in, amongst other things, the security and stability of Southeast Asia. Because of these reasons Japan began to improve her diplomatic relationship with the region as whole and the bilateral level.

The China-Japan peace and friendship treaty was signed in August 1978 (Economic Cooperation Bureau, 2001: 167). Japan has always remained important to because of their cultural and historical closeness, geographical proximity, and strategic and political interests. Strategic considerations include China's natural resources, especially energy; political considerations include building close and friendly relations with China to give Japan a counterbalance to still strained tie with the Russia, ambiguity over North Korea, and conflicts in Indochina (Rix, 1993: 139). It was not until 1979 that Tokyo extended its first ODA to China followed by normalization of diplomatic relations in 1972 and signing of the peace treaty in 1978. In 1979, China showed a willingness to accept foreign aid for eight infrastructure construction projects. Japanese aid to China has increased substantially since then.

Given the impacts of a series of international crises in the 1970s, foreign aid did not remain a simple tool of economic self-interest but entered into the foreign policy framework as a strong diplomatic tool. Lacking military power, Japan's policy-makers started to use aid as a tool to secure her own position, to resolve regional and country level conflicts so that disputes or external intervention might never develop, and to improve her position in the global environment as a resourceful and creditworthy nation. As such, foreign aid began to develop both in quantitative and qualitative terms. In 1978, the first medium term ODA Plan (1978-80) was introduced, targeting to double the annual amount from \$1.4 to \$2.8 at the end of the period (Table 1). From 1978 to 1980, Japan more than doubled her annual ODA disbursements. ODA to GNP ratio rose from 0.23 of 1978 level to 0.32 in 1980.

Having the experience of difficult aid management in the 1970s, aid later developed into a multi-dimensional and multi-purpose diplomatic instrument in the 1980s. Despite the lion's share of aid being biased toward Asia⁶, Japanese aid eventually began to acquire a global focus, enhancing Japan's relations with rest of the world. The Ministry of International Trade and Industry (MITI) wanted to use ODA to restructure Japan's FDI and trade relations with Southeast Asia. The Ministry of Foreign Affairs (MOFA), on the other hand, was more likely to use aid as a diplomatic lever. As a result both commercial and strategic perspectives dominated the aid flow of Japan in the 1980s.

ODA policy-making was a bit challenging in the latter half of the 1980s. Aid became the subject of evaluation in both domestic and international platforms. Western alliance tinted out Japanese pledges for more ODA and the failure to meet DAC standard in terms of concessionality. Domestic critics from the media, universities, grassroots organizations, and opposition parties focused on the waste and corruption of Japanese ODA. More challenges for the ODA policy came after the Plaza Accord in September 1985. The outcome of the Plaza accord was the recognition of Japan as an economic superpower. Firstly, the Plaza accords increased the expectations substantially about Japan's global role as the largest creditor nation. Secondly, it forced Japan to respond quickly with her own economic security and competitiveness strategies in the changing economic polarization. The Plaza accord can be considered as a milestone for Japan because at this point the country regained her confidence as a great economic power and began to define her role heading into the twenty first century.

Another important event in 1985 was the international debt crises. International debt crises gave the lesson of growing interdependence between rich and poor through globalizations. Japan's initial response to the debt crises was a \$10 billion multilateral aid package in 1986 and a \$20 billion surplus recycling plan in 1987. However,

⁶ Japan's aid concentration to Asia was almost 100 per cent in the 1960s and very first years of the 1970s. In 1971, 98.4 per cent of Japanese aid went to Asia. However, the percentage declined gradually in the later years of the decade and by the late 1970s the percentage stabilized between 65 to 70 per cent. In the early 1980s the Foreign Ministry unofficially instituted a policy of maintaining 70-10-10-10 ratio, which means 70 per cent to Asia and 10 per cent each for Latin America, the Middle East and Africa, respectively.

following the debt crises Japan developed a problem balancing its interests and western pressure to explicitly include concessionality especially economic policy reform in ODA allocation, for the latter Japan was not entirely supportive. As Japan always places high value on the agreements of her western alliance at least to avoid criticism about the quality of aid, policy concessionality was included as an explicit agenda of ODA allocation. In June 1988, the fourth medium term ODA Plan (1988-1992) was announced and in December 1989, Japan emerged as a leading ODA donor among members for the first time.

After the Plaza Accord in 1985, coping with increased international economic competitiveness became a key issue for Japan. The appreciation of the yen made certain manufacturing sectors uncompetitive and allowed the country to move her manufacturing overseas. Japan explored to find profitable investment opportunities abroad. Asia and especially the Southeast Asia emerged as natural candidates due to superior locational advantage for Japan's FDI. Since 1985 Japan's FDI in Asian manufacturing grew quickly from about \$500 million a year to over \$3 billion a year (Arase, 1995: 142). Japanese ODA began to be used as a way to build infrastructure, to improve domestic skills, and to create institutions in her Asian neighbours, ensuring less risky flows of Japanese capital. Undoubtedly, Japan's effort was successful and both of the parties benefited. Japan could face her economic challenges and Southeast Asian countries could experience a higher growth path. This success story led Japan to formulate her own style of development cooperation: support industrial development and economic integration of developing countries (Ohno, 2003: 30-41).

In the second half of the 1980s the power of the socialist block was on track to weaken with significant implications Japan's ODA policy. One such implication related to Japan's contribution to western security. During the Cold War era there was pressure from the western alliance, especially from the US, to allocate more aid to the countries facing a Soviet threat. Anyway, as security threats disappeared, the transition economies in Asia became a more feasible region for Japan's foreign assistance and private capital flow because of continued market-oriented reform in those economies.

Japanese aid in the 1990s

Transitional economies in Asia such as Laos, Vietnam, and Mongolia emerged as key recipient nations as Japan's overall economic and political interest and ODA flow to these countries increased substantially in the 1990s. In addition, after the break-up of former Soviet Union in 1991, previously socialist countries in Central Asia and Eastern Europe became included on the ODA recipient list for the reconstruction of the countries in order to hold Japan's image and interest in the changing environment. Given the changing global socio-economic, political and environmental situation together with the collapse of the Cold War, Japan enacted a new ODA charter in 1992. As a result, Japan's ODA has become more streamlined and objective-based in the last decade than ever before. The basic philosophy of the ODA charter was induced from a humanitarian background of widespread poverty, environmental concerns, self-help efforts of the recipient counties and that of Japan's

recognition of interdependence and so as to bring peace and prosperity together. The application of the charter, however, as it is specified, should be dealt with case to case basic and with consideration of each country's specific development context and a positive reaction if the country shows improvements in areas of assistance. Moreover, some flexibility must be expected in case of humanitarian or emergency aid or aid given through international organizations or NGOs. The charter was adopted from the viewpoint of Japan's commitment to maintain world peace and from the perspective of the changing environment especially with the end of the Cold War and its experience of managing ODA for last 38 years. Given the ODA charter in 1992, its subsequent amendments and effort of the country as a whole, it is expected that Japan's ODA has been more streamlined and objective-based in the last decade than ever before. During this period the fifth ODA plan (1993-97) was introduced. It was envisaged to increase ODA allocation up to \$70-\$75 billion for the five year period.

Japanese aid in 2000-present

At the time of this writing the government of Japan is revising its decade old ODA charter in response to the global changes induced by the 11 September 2001 attacks, the Millennium Development Goals adopted by the United Nations, and increasing calls for Japan to have more transparent and greater diversity in ODA programmes. It has been asserted in the discussion above that Japanese bilateral aid allocation has two goals. The first goal has been survival and prosperity, reflecting the economic aspect of its aid policy. This is what some writers have described as 'economic nationalism' (Hasegawa, 1975: 3; Ozawa, 1989: 95; and Tisch and Wallace 1994, 6)⁷. According to the most recent ODA policy report published by the Ministry of Foreign Affairs of Japan, since Japan relies heavily on the use of foreign resources and markets, "coexistence with the world, and in particular, with Asia, has been an essential requirement for Japan's survival and prosperity" (MOFA, 2002)⁸. Accordingly, most Japanese aid flows into neighbouring Asian countries with which it has considerable trade and investment links. Allocation of aid in this way more or less reflects recycling of the Japanese surplus created from large external trade and investment.

The second goal has been to acquire and maintain the social and political trust of the world community. Japan has kept pace with the other developed nations by joining the Development Assistance Committee (DAC) in 1961 as a founding member. It has also been a member of the Organisation of Economic Co-operation and Development (OECD) since 1964. Membership in these organisations places responsibilities on member countries to meet targets as jointly determined in regard to development assistance but still permits individual member countries to set their own aid levels

⁷ Hasegawa divided objectives of the Japanese aid programme as falling into five groups: (1) Japanese nationalism, (2) non-ideological economic expansionism, (3) ideological expansionism, (4) self-preservation, and (5) world communalism.

⁸ The Final Report of the Second Consultative Committee on ODA Reform of Japanese Government is available at <http://www.mofa.go.jp/policy/oda/reform/report0203.html>. Accessed date is 20 December 2002.

(Rix, 1980: 28). Anyway, Japan has presented the rationale for its foreign assistance programme in terms of five main factors: perceived international obligation (1) as a rich nation, (2) as the world's greatest creditor nation, (3) as a country economically dependent on less developed countries, (4) as a peace-loving nation and (5) as the only advanced non-western nation (Rix, 1993: 14).

Table 1: ODA Plans of Japan and their main features

Plan	Period	Main features/targets
First Plan	1978-1980	To double the annual amount of ODA from \$1.4 billion per year to \$2.8 billion per year at the end of the period.
Second Plan	1981-1985	To double the 5 year total amount of ODA from \$10.7 billion to \$21.4 billion at the end of the period.
Third Plan	1986-1992	To double the annual amount of ODA from \$3.8 billion per year to \$7.6 billion per year at the end of the period.
Fourth Plan	1988-1992	To double the 5 year total amount of ODA from \$25 billion per year to \$50 billion per year at the end of the period.
Fifth Plan	1993-1997	To increase the 5 year total amount of ODA from \$70 billion to \$75 billion at the end of the period and also increase grant components and untied projects.
Sixth Plan	1999-2004	ODA has been more streamlined and objective based. Has encouraged more NGO participation.

Source: Adapted from Yamashita and Khachi (2003)

As mentioned earlier, whatever the reasons mentioned above, Japan, as one of the largest donor countries in the world, has made ODA contributions to more than 150 developing countries. Table 2 below reveals the comparative picture of Japanese aid.

Table 2: Japanese net ODA compared with other donor countries

	1960-69	1970-79	1980-89	1990-99	2000	2001	2002
Japan	225.79 (0.22)	1229.44 (0.22)	5249.84 (0.30)	11175.88 (0.26)	13507.96 (0.28)	9846.82 (0.23)	9282.96 (0.23)
Australia	115.77 (0.43)	398.63 (0.44)	797.86 (0.40)	1033.64 (0.30)	987.14 (0.26)	872.78 (0.24)	988.74 (0.25)
Belgium	88.44 (0.56)	323.27 (0.52)	557.23 (0.51)	848.15 (0.36)	819.66 (0.35)	867.32 (0.37)	1071.59 (0.42)
Canada	120.26 (0.14)	729.82 (0.46)	1639.35 (0.45)	2155.79 (0.38)	1743.60 (0.25)	1532.75 (0.23)	2006.41 (0.29)
France	845.05 (0.91)	1343.05 (0.43)	3852.73 (0.55)	7278.24 (0.53)	4104.71 (0.31)	4198.03 0.32	5486.15 0.39
Germany	436.28 -	1541.53 (0.28)	3670.09 (0.38)	6664.17 (0.32)	5030.00 (0.27)	(4989.50) (0.27)	(5324.43) (0.27)
Italy	90.29 (0.14)	209.61 (0.11)	1704.90 (0.28)	2599.99 (0.23)	1376.26 (0.13)	1626.95 (0.15)	2332.13 (0.20)
Netherlands	78.66 (0.37)	626.77 (0.65)	1637.06 (0.92)	2844.45 (0.79)	3134.78 (0.84)	3172.49 (0.83)	3338.01 (0.80)
United Kingdom	453.30 -	973.89 (0.38)	1925.53 (0.34)	3232.30 (0.28)	4501.26 (0.31)	4578.99 (0.32)	4924.34 (0.31)
United States	3463.71 (0.50)	4010.33 (0.25)	8381.40 (0.21)	9596.82 (0.14)	9954.89 (0.10)	11429.35 (0.11)	13290.07 (0.13)

Source: OECD Statistics Online⁹ and World Development Indicators. Note: Net ODA figures are in million US dollar. Net ODA figure as percentage of GNP is given in parentheses.

⁹ <http://www.oecd.org/dataoecd/>

Regional distribution of Japanese aid

On the issue of regional distribution, it was in the second diplomacy report, produced as far back as 1958, which emphasised the importance of economic prosperity of Asia as a necessary condition for the political and economic stability of Japan itself. Hence the favoured position held by Asia in the distribution of Japanese assistance. This distribution scheme, with priority given to Asia, may remain unchanged for several years given the highly diverse conditions in Asian developing countries in terms of income levels, growth rates and social and environmental conditions (Cooray, 2003). Since the collapse of the former Soviet Union, the transition economies in Central Asia were also added to the number of Asian countries receiving Japanese assistance. Table 2 below presents details of the geographical distribution of Japanese ODA. From the table we can note that Japanese aid to Asia is unequally distributed by country and region. Southeast Asia, whose per capita incomes are comparatively higher, receives 32.7 per cent of the total as compared to the 11.7 per cent received by the so-called Southwest Asia. In the geographical distribution of Japanese ODA, Africa ranks second as a recipient world region with Latin America and the Caribbean occupying the third position. Africa received 10.1 per cent of Japanese ODA in 2000 and Latin America 8.3 per cent. A detail of the geographical distribution of Japanese ODA is shown in Table 3.

Table 3: Regional distribution of Japanese aid

	1980	1985-89	1990-94	1995-1999	2000
Asia	1383 (70.51)	3183.2 (64.04)	4913.4 (58.30)	4993.716 (55.95)	5283.82 (54.81)
Northeast Asia	82 (4.18)	616.6 (12.41)	1133.2 (13.45)	1099.658 (12.32)	700.46 (7.2)
Southeast Asia	861 (43.89)	1684 (33.88)	2533.2 (30.06)	2444.924 (27.39)	3155.47 (32.73)
Southwest Asia	435 (22.18)	875.2 (17.61)	1229.2 (14.59)	1269.942 (14.23)	1130.07 (11.72)
Others	5 (0.25)	7.4 (0.15)	17.8 (0.21)	179.192 (2.01)	297.82 (3.09)
Middle East	204 (10.40)	403.6 (8.12)	829.8 (9.85)	546.23 (6.12)	727.46 (7.55)
Africa	223 (11.37)	622 (12.51)	934.2 (11.09)	1029.526 (11.53)	968.98 (10.05)
Central and South America	118 (6.02)	384.4 (7.73)	749.6 (8.89)	842.042 (9.43)	799.56 (8.29)
Oceania	12 (0.61)	67.6 (1.36)	131.2 (1.56)	160.446 (1.80)	151.06 (1.57)
Europe	-1.5 (-0.08)	4 (0.08)	106.8 (1.27)	156.424 (1.75)	117.57 (1.22)
Unallocated/unspecified	23 (1.17)	305.6 (6.15)	763.4 (9.06)	1197.726 (13.42)	1591.64 (16.51)
Total	1961.5 (100.00)	4970.4 (100.00)	8427.6 (100.00)	8925.91 (100.00)	9640.09 (100.00)

Source: Compiled by authors from various ODA Annual Reports.

Note: Percentage is given in parenthesis. Net disbursement is in million dollars.

3. Review of literature on aid allocation

Having discussed the policies of Japanese aid and its regional distribution highlighting factors affecting aid allocation, we present in this section a review of literature on determinants of aid allocation of other donor countries. Research on bilateral aid allocation behaviour started in the mid-1950s. Since then several studies have been done on aid allocation decisions of various bilateral donors, mostly on the United States and other western donors. However, the use of econometric modelling to describe the decision of aid allocation began in the late 1970s. The most pioneering and widely cited empirical works include those of McKinlay and Little (1977, 1979), McKinlay (1978). They estimated two different equations with different variables representing both the recipient-need and donor-interest (RN-DI) aspects in aid allocation pattern of major donors. However, in recent years criticisms have emerged regarding the specification of the RN-DI model (McGillivray, 2003). McKinlay and Little (1977, 1979) analyzed US aid allocation behaviour over the period 1960 to 1970. The results revealed that humanitarian criteria did not cause and explain US aid allocation, whereas security and political reasons were found to be highly significant in the US aid allocation choice.

Maizels and Nissanke (1984), with cross country data, attempted to identify the underlying principles of aid allocation using recipient need and donor interest for the period 1969/70 to 1978/80. The study examined bilateral and multilateral aid from principal donors such as the US, France, Germany, Japan and the UK. Results found that bilateral aid flows are heavily determined by donor interest where as multilateral aid allocations are made available according to recipient needs.

McGillivray and Oczkowski (1992) found that the UK favours its former colonies (currently known as Commonwealth Countries) in their bilateral aid allocation. The result was also consistent with humanitarian interests.

Shishido and Minato (1994: 110) studied the ODA behaviour of the G7 countries at both aggregate and bilateral levels. According to the study "many differences were observed in their behaviour in terms of international security, conflicts between policy targets, neutrality, humanitarianism, trade linkage, etc., at both the aggregate and bilateral allocation levels in the ODA flow". The countries, according to the study, that show a growing dynamism in their ODA behaviour are Japan, Germany, France, and Italy.

Gounder (1994) tested the recipient need and donor interest hypotheses by taking Australia's bilateral aid programs into consideration. In contrast to the findings of other studies, both donor interest and recipient need models are supported in the case of Australia's bilateral aid allocation. Again, Gounder and Sen (1999) studied the behaviour of Australian aid to Indonesia using the data from 1970/71 to 1995/96. Two regression models, namely RN and DI models; were employed. The results revealed that both RN and DI models explain Australia's aid to Indonesia, in general, but the RN model dominates the DI model.

Arvin and Drewes (2001: 176) focused on the issues of population and middle-income biases in German aid allocation. The sample study of 85 recipient countries for the period 1973-1995 found evidence of population bias but no middle-income bias in German aid allocation. Berthelemy and Tichit (2002: 26) studied the aid allocation behaviour of the 22 donors of the Development Assistance Committee of the OECD for 20 years (1980-99) and 137 recipient countries. The authors utilised a Tobit model in their study and found that aid is generally increasing for most donors in the 1990s and good economic and political environments have been rewarded by donors since 1990.

Neumayer (2003:109) studied the determinants of aid allocation of four regional multilateral development banks namely the African Development Bank, the Caribbean Development Bank, the Asian Development Bank, the Inter-American Development Bank and three United Nations agencies namely United Nations Development Programme (UNDP), United Nations Children's Fund (UNICEF), and United Nations Regular Programme of Technical Assistance (UNTA). Introducing various policy variables in the analysis along with most of the conventional variables like GDP per capita, population etc, the study found that most multilateral development banks focus on economic need, while out of the three United Nations agencies UNDP's result is robust for the human development variable. Again while the political freedom variable, an unweighted sum of political rights and civil liberty indexes, plays a role for some agencies, personal integrity rights or corruption does not play a significant role for any banks or agencies. The three United Nations agencies have bias of more aid to countries geographically more distant from the centres of Western World and most donors, with exception of the African Development Bank, are affected by a population bias.

McGillivray (2003: 5) pointed out that estimations of two separate equations provides biased results as the both recipient needs and donor interests influence aid allocation in a different way. As all of the donor-interest and recipient-need variables have an effect on aid allocation, it is necessary to introduce them altogether in one equation. He also studied the reliability of the RN-DI studies by using rigorous econometric methods and found that, as opposed to the previous findings in RN-DN studies, development criteria, in fact, affected the US aid allocation assessment during the cold war period. Table 4 shows the summary of major studies on aid allocation together with their main features.

Table: 4 Summary of major studies on bilateral ODA allocation

Author (date) and sample period (SP)	Donor	Explanatory variables	Main Findings
McKinlay and Little (1977 and 1979) Sample period: 1960-70	U.S.	Recipient need: GDP per capita, per capita calorie consumption, number of doctors per 100,000 population, size of international liquidity, growth rate of real per capita GDP, and gross domestic fixed capital formation. Donor interest: development interests, overseas economic interests, security interests, power political interests, and political stability and democracy interest variables.	Foreign policy view clearly dominated.
Maizels and Nissanke (1984) Sample period: 1969-70 and 1978-80	U.S., French, German, Japanese, British, multilateral aid flow	Recipient need: Population, GNP per capita, PQLI, GNP growth rate, balance of payments Donor Interest: Political and security interests, investment interests, and trade interests variables.	Donor interest model provides good explanation for bilateral aid, whereas recipient need model fits multilateral flow.
Mark McGillivray and Edward Oczkowski (1992) Sample period: 1980-87	Britain	GNP per capita, population, dummy variable for least developed countries, newly industrialized country dummy.	British bilateral aid eligibility and amount decisions are related to her humanitarian, commercial, and political interests in developing countries.
1994: Gounder Sample period: 1985-92	Australia	Recipient need: per capita living levels, growth rate of per capita, deficit of the balance of payments, population	Both recipient need and donor interest models provide good explanation of Australia's bilateral aid.
Shishido, Minato (1994) Sample period: 1970-89	G7 countries: Japan, US, Canada, UK, France, Germany, and Italy	Aggregate ODA: nominal GDP, current account balance, exchange rate, defence expenditure, social security expenditure. Bilateral ODA: population, per capita GNP, share of primary imports, manufacturing exports.	Many differences were observed in the behaviour of donors. Japan, Germany, France, and Italy show growing dynamism in their ODA behaviour.
1999: Gounder and Sen	Australia	Recipient need: per capita GNP, deficit on the balance of payments, population, time lag of per capita aid Donor interest: per capita military aid, Australia's investment to Indonesia, Australia's export to Indonesia.	Recipient need model dominates the donor interest model.
Arvin and Drewes (2000) Sample period: 1973-95	German	GNP per capita, population, import of the recipient from Germany, privileged group, and country dummy	Existence of a population bias, but no evidence of a middle income bias.
Berthelemy and Tichit (2002) Sample period: 1980-99	22 donors of the DAC of OECD	Real GDP per capita, population, growth rate, FDI, primary enrolment rate, infant mortality, total aid commitment of other donors, civil liberty and political freedom, bilateral trade flow, dummy variables: former colony, when the recipient is Egypt and donor is USA.	Donors reward good economic policy outcomes since 1990. The end of cold war has reduced the bias towards former colonial links.
Neumayer (2003) Sample period: 1983-97	Four regional development banks and three United Nations agencies.	Population, GDP per capita, political freedom, integrity rights, military expenditures, arms imports, PQLI, corruption, colony dummy.	Most regional development banks focus exclusively on economic need of the recipient. UN agencies take account the human development aspects.
McGillivray (2003)	US	GNP per capita, population, infant mortality rate, income growth, US export to recipient country, US arms transfer to the recipient, and special relation dummy.	Development criteria have had a larger influence during the Cold War period than previously thought.

4. The model specification, data and estimation

As evident, in Section 2 on Japanese aid policy and Section 3 on the literature survey of aid allocation, donors have underlying factors which affect their aid allocation decisions. Existing literature classifies them into donor-interest and recipient-need. Recently, policy performance variables have been included in aid allocation studies as a third group of variables. Donor-interest explains the economic, political, and strategic interests of the donor while recipient-need explains the economic, social, and human development needs of the recipient countries. As shown in the literature review, there is little doubt that donor interest variables play dominant role in aid allocation although donor's various policy documents explain recipient need criteria as a main factor in allocating aid. For example, the basic doctrines of Japan's ODA Charter of 1992 are those of humanitarian considerations and to support recipient in self-help efforts. If aid is allocated on the basis of recipient needs, then the poorest countries should receive more aid than their richest counterparts. A number of studies find that donors give more aid to poor countries. Some studies include human development aspects to explain recipient need. Following Burnside and Dollar's (1997) conclusions that aid works only in a good policy environment, bilateral and multilateral donors are now becoming concerned with the policy environment of recipient countries. Recent aid allocation studies accordingly include some policy performance variables.

A turning point of aid allocation is the studies of McKinlay and Little that introduced the tools of econometric analysis. McKinlay and Little are concerned about the bilateral aid and their various studies are on German aid, French aid, British aid, and United States aid using data for each year from 1960 to 1970. The major innovation of McKinlay and little is the use of two separate models: recipient need and donor interest (see review of literature section for details). However, in recent years critics have argued against estimating two separate models (McGillivray, 2003: 4). McGillivray shows that estimating two separate equations is problematic; econometrically speaking, he asserts that both recipient need and donor interest influence aid allocation. In this case both models are mis-specified due to the omission of relevant variables. McGillivray's findings have given rise to a second generation of studies in aid allocation: bringing donor interest, recipient need and policy performance variables inclusively into one model.

In the current study, we put all Recipient Need (RN), Donor Interest (DI), policy performance variables together so this approach can escape the criticism of the omitted variable problem. The model is estimated using cross-sectional and time series data for recipient countries. All explanatory variables are in one year lag. This is due to the fact that aid decisions are made just prior to or at the commencement of a year. At that time data available to the decision makers is mostly for previous year. We choose aid commitment rather than the disbursement as the dependent variable. Here, commitment should be viewed as the decision to supply aid. If the receipts are lower than the commitment it is due to the subsequent failure of the recipients. There is controversy in existing literatures about the use of endogenous variable in per capita or absolute terms (McGillivray, 1992: 1314). Calculating per capita aid allocations, from a pool of predetermined funds, may be a difficult and

cumbersome procedure as donors and aid agencies rarely report aid in per capita terms. The fact is that aid is allocated in absolute terms from a large amount of pooled funds. Absolute aid allocation is the final decision which may be already adjusted for the population of the recipient country, if donors deem it important. The variables ODA, population, per capita GDP, distance, export from Japan and import to Japan are employed in natural log as they vary across a large range among recipients. Population and GDP per capita are also employed in the quadratic form to allow for non-linearity in their relationship with the aid variable. The general form of the regression equation is as follows:

$$\ln(ODA_{it}) = \beta_0 + \beta_1 \ln(GDPPC_{it-1}) + \beta_2 (\ln(GDPPC_{it-1}))^2 + \beta_3 \ln(POP_{it-1}) + \beta_4 (\ln(POP_{it-1}))^2 \\ + \beta_5 \ln(EXP_J_{it-1}) + \beta_6 \ln(IMP_J_{it-1}) + \beta_7 Freedom + \beta_8 \ln(DIST_{ji}) + \beta_9 IMR_{it-1} \\ + \beta_{10} OPEN_{it-1} + u_{it}$$

Where, ODA is the bilateral ODA commitment, GDP is real GDP per capita of the recipient country, POP is Population of the recipient country, EXP_J is export from Japan to recipient country; and IMP_J is the import to Japan from recipient country. Freedom is an index of democracy indicating civil liberty and political right of the recipient country. DIST is the distance from Tokyo to the capital city of the recipient country IMR is the infant mortality rate while OPEN is the openness index of the recipient country.

Data and sources

The sample included in this study covers about 96 Japanese aid recipient countries/territories for the period of 1981-2001. Every attempt has been made to contain as many recipient countries as possible. Sample size is affected by the availability of data of the explanatory variables. Data for all variables are taken on a yearly basis. ODA is the bilateral ODA commitments by purpose of the Japanese Government taken from the Geographical Distribution of Financial Flow of Source OECD online database. The nominal ODA flow has been converted to real using 1995 constant dollars by using the deflator for resource flow from DAC members. Real GDP per capita at constant 1995 dollars is taken from the World Development Indicators (WDI) online database. POP is the Population of the recipient country, also collected from WDI. EXP_J and IMP_J are the constant 1995 exports and imports from and to Japan respectively collected from Source OECD. Nominal export and import data are collected from Direction of Trade (DOT) online database and again it is converted into real figures by using the deflator. The distance (DIST) from Tokyo to the capital city of the recipient country is collected from Meridian world database. Index for freedom of democracy is an un-weighted sum of political right and civil liberty indexes taken from Freedom House's Freedom of the World survey. The survey evaluates political rights and civil liberties separately on a seven-category scale, 1 representing the most free and 7 the least free. Infant mortality rate is included in this study as an indicator of the performance of social policies in the recipient country. The data is collected from the WDI online of the World Bank. However because of the large number of missing observations in the data series it has been necessary to estimate missing values from the data set. When we don't

have any a priori information, the most common approach is to replace the missing observation with the sample mean of observations OPEN is the ratio of the sum of the export and import to GDP of the recipient country. Export, import and GDP data are collected from the WDI online of the World Bank.

5. Estimated results and conclusion

The estimation results are given in the following table 5. Because the absolute amount of aid varies in large extent among the recipient, it is suspected that heteroscedasticity presents in the data. For this reason, a Generalized Least Squares (GLS) in Cross Section Weights is employed. For each specification "F" test is performed to compare the common intercept and fixed effects estimation. The test statistics rejects the null hypothesis of common intercept. In the second stage, random effects model is run and Hausman test statistics is performed for each of the specifications to compare fixed effects and random effects. The Hausman test statistics reject the random effects in favour of the fixed effects models. However, as the distance variable can not be estimated in the fixed effects model because of its time-invariant characteristics, the GLS estimation in common intercept is also reported in table 5 along with the fixed effects specifications. The explanatory powers of equations as measured by R^2 are quite high given the cross sectional nature of the study. The variables such as real GDP per capita, population size, exports from Japan to recipient country, imports to Japan from the recipient countries, distance, and the infant mortality rate variable are entered in all equations because of better data availability. The variable OPEN is included to check the number of observations and robustness of the results. As for the DIST variables the sign of the coefficients are negative as expected and statistically significant at 1% in the common intercept estimations. This illustrates Japan's bias toward Asian countries. It should be noted that Asia concentration is the outcome of overall foreign policy objectives.

Table 5: Estimated equations

	Common Intercept		Fixed Effects	
	Specification 1	Specification 2	Specification 1	Specification 2
GDPPC	3.228*** (10.844)	2.767*** (7.287)	3.205*** (3.605)	2.788** (2.526)
GDPPC ²	-0.247*** (-12.122)	-0.219*** (-8.081)	-0.173** (-2.543)	-0.156* (-1.856)
POP	0.617*** (15.675)	0.583*** (10.548)	2.606*** (8.574)	3.192*** (6.776)
POP ²	-0.026*** (-4.325)	-0.029*** (-4.117)	-0.267*** (-4.591)	-0.357*** (-4.153)
EXP_J	0.064* (1.681)	0.123*** (2.692)	0.186*** (3.602)	0.187*** (2.896)
IMP_J	0.078*** (3.757)	0.098*** (4.1)	0.059* (1.877)	0.0007 (0.018)
DIST	-1.133*** (-12.391)	-0.988*** (-8.016)		
Freedom	-0.114*** (-10.766)	-0.099*** (-7.866)	-0.057*** (-4.126)	-0.026* (-1.681)
IMR	0.0001 (1.09)	-0.0007 (0.457)	-0.002 (-0.482)	-0.004 (1.039)
OPEN		0.134 (1.007)		-0.009 (-0.045)
Constant	2.108 (1.583)	2.25 (1.217)		
No. of obs.	1644	1402	1644	1402
Adjusted R ²	0.782	0.781	0.886	0.883

Dependent variable is total bilateral aid commitment. GLS regression is with yearly data. Figures are rounded.

*** Significant at 1% level.

** Significant at 5% level.

* Significant at 10% level.

Numbers in the parentheses are t statistics.

In table 5, the common intercept estimations are qualitatively similar to the fixed effects estimations. The absolute aid increases as the GDP per capita increases but decreases after a threshold level of GDP per capita is reached. Japan's ODA thus shows an income bias (or middle income concerns). Japan may extend aid before reaching a threshold level. The relationship between GDPPC and ODA is high in the equations. As evident from specification 1 in the fixed effects, after the threshold level 1 per cent increase in GDP per capita would decrease absolute ODA by 0.17 per cent that reflects humanitarian consideration of Japan's ODA allocation.

The population variable also shows a non-linear relation. The sign condition is positive before a threshold level. Population size represents the recipient need as larger the population size the larger the need of total aid. Regression results show that at the first stage as population increases absolute aid increases but after a threshold level of population the relationship is inverse. Before the threshold level a one percent increases of population increases absolute ODA by 2.6 percent but after the threshold level one percent increases in population decreases aid by 0.27 percent.

The variable EXP_J and IMP_J explain Japan's commercial and security objectives. The explanation of the export variable should be quite clear as Japan uses ODA to

extend the market for her products in the developing world. However, the import variable explains the security motive, as discussed earlier, the oil crisis in the early 1970s stimulated Japan to reshape her foreign policy to secure energy and raw material supplies for the domestic economy. In specification 1 of the fixed effects, both export and import variables have the expected sign and they are significant. The export variable is significant at 1 per cent level and the import variable is at 10 percent. These empirical results demonstrate Japan's commercial and security motives in allocating aid.

The parameter for freedom variable is negative as expected and it is significant. This means that Japan concerns about the democratic situation of the recipient country when they make aid allocation decisions. The variables infant mortality rate and openness index are not significant in any specification.

In conclusion, it is clear that Japanese aid allocation policies have changed over time and we have identified through our empirical investigation the major determinants of Japanese bilateral aid allocation. It is also obvious from the study that Japan takes her own national interests as well as recipient countries' needs into account in allocating their aid. The nature of Asian biasness also may continue given Japan's considerable trade and investment links with other Asian countries. Allocation of aid in this way more or less reflects recycling of the Japanese surplus created from large external trade and investment. Given the historical trends, one can conclude that these determinant factors should continue to play a vital role in aid allocation decision-making for some years come.

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