

# Loans versus Grants in Japanese Bilateral ODA - Evidence from Panel Data

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# Research Question

- Does the grant-loan ratio in Japanese bilateral ODA account for the economic/political relationship with the recipient as well as the recipients' characteristics?
- If so, what is the determinant for the proportion of grants, in terms of the recipients characteristics?

# Former Studies

- Many researchers discuss the allocation of aid, but there are few researches that study (1) the allocation of grants versus loans, (2) the determinants from the perspective recipients' characteristics
- For the grant-loan argument, Odedokun (2003) examines the determinants of the ratio of grants out of total ODA, focusing on donors' characteristics.
- Schudel (2008) studies the relationship between corruptions and aid allocations.

	variable	description	N	mean	sd	min	max
1	lgrantsratio	log(grants/total ODA)	999	-0.392	0.808	-4.52	0
2	lgrants_gdp	log(grants/GDP per capita)	953	-20.233	2.236	-27.97	-14.52
3	debtpolicy	"CPIA debt policy rating (1=low to 6=high)"	533	3.462	0.909	1	6
4	macromanagement	"CPIA macroeconomic management rating (1=low to 6=high)"	533	3.701	0.709	1	5.5
5	transparency	"CPIA transparency, accountability, and corruption in the public sector rating (1=low to 6=high)"	533	2.878	0.668	1	4.5
6	caccount	Current account balance (% of GDP)	1089	-3.274	12.342	-51	48.2
7	caccountsqrd	caccount <sup>2</sup>	1089	162.904	327.322	0	2601
8	ldebt	"Total debt service (% of GNI) in logarithm"	875	0.945	1.071	-3.49	4.91
9	ltrade	"Trade (% of GDP) in logarithm"	1208	4.447	0.47	3.1	6.13
10	lmilitaryex	"Military expenditure (% of GDP) in logarithm"	976	0.513	0.691	-3.07	2.47
11	fdi_gdp	FDI from Japan (10000% of GDP)	540	0.12	1.418	-7.85	19.42
12	fdisqrd	fdi_gdp <sup>2</sup>	540	2.022	24.34	0	376.99
13	gdp_gr	"GDP growth (annual %)"	1320	4.255	4.767	-18	34.5
14	lgdp	log(GDP per capita)	1334	23.83	2.42	16.9	30.34
15	asia	Asia dummy	1641	0.229	0.42	0	1
16	dac_1	Least developed countries	1641	0.224	0.417	0	1
17	dac_2	Other low income countries	1641	0.029	0.167	0	1
18	dac_3	Lower middle income countries	1641	0.18	0.385	0	1
19	dac_4	Upper middle income countries	1641	0.241	0.428	0	1
20	polconiii	Political Constraints	1446	0.272	0.195	0	0.71
21	pr	Political rights index by Freedom House	1544	3.351	2.144	1	7
22	polityv	Democracy index by polity IV	1116	0.968	15.855	-88	10

# Hypothesis

- Heavy external debts reduce the loans because it raises the risk of not repaying loans
- GDP per capita and GDP growth rate: relatively richer countries would receive more loans
- Policy quality: better policy quality (good governance) would increase loans
- Economic ties with Japan (measured by FDI) would increase grants and aid volume
- Asian countries have traditionally receive more ODA from Japan, but how about grant-loan ratio?

# Model

- Panel-data random-effects (RE) model and fixed-effects (FE) model are used
- Dependent variable: rate of grants out of total ODA amount, the amounts of grants  
→ comparing the two dependent variables, we can see if the independent variable have the same effects in terms of ratio and volume
- To maintain the number of observations, two sets of independent variables are tested

	(1)	(2)	(3)	(4)
	lgrantsratio	lgrantsratio	lgrants_gdp	lgrants_gdp
debtpolicy	0.383 (3.64)***		-0.423 (1.94)*	
macromanagement	-0.327 (3.31)***		0.243 (1.18)	
transparency	-0.366 (2.93)***		0.387 (1.50)	
caccount	0.017 (2.63)***	0.019 (2.86)***	-0.006 (0.49)	0.001 (0.14)
caccountsqrd	0.000 (1.42)	0.000 (1.12)	0.001 (1.71)*	0.000 (1.63)
ldebt	-0.163 (2.61)***	-0.173 (2.99)***	0.045 (0.35)	0.108 (1.38)
ltrade	-0.056 (0.33)	-0.353 (1.72)*	0.317 (0.91)	0.423 (1.44)
lmilitaryex	-0.186 (1.96)*	-0.028 (0.26)	-0.469 (2.45)**	-0.267 (1.73)*
fdi_gdp	-0.183 (0.12)	-1.239 (6.91)***	3.523 (1.12)	0.988 (4.24)***
fdisqrd	-2.394 (1.79)*	-0.754 (3.71)***	-1.186 (0.42)	0.535 (1.99)**
gdp_gr	0.005 (0.32)	0.026 (2.11)**	-0.065 (1.94)*	-0.030 (1.83)*
lgdp	-0.308 (5.06)***	-0.260 (3.88)***	-0.244 (1.99)**	-0.380 (3.87)***
asia	-0.530 (3.43)***	-0.631 (3.24)***	1.192 (3.89)***	1.481 (5.09)***
dac_2	0.437 (1.29)	0.537 (0.93)	0.062 (0.09)	-0.341 (0.40)
dac_3	-0.157 (0.91)	-0.187 (0.78)	-0.633 (1.83)*	-0.766 (2.16)**
dac_4	0.064 (0.18)	0.028 (0.10)	-3.437 (4.67)***	-2.501 (5.96)***
polconiii		-0.057 (0.18)		-0.244 (0.58)
pr		0.008 (0.18)		-0.092 (1.50)
polity		0.001 (0.30)		-0.001 (0.12)
_cons	8.456 (4.72)***	7.363 (3.58)***	-14.849 (4.11)***	-11.446 (3.83)***
N	132	323	132	323
Number of groups	40	73	40	73
Wald Chi-squared	142.20	120.67	126.20	293.20

	(5)	(6)	(7)	(8)
	lgrantsratio	lgrantsratio	lgrants_gdp	lgrants_gdp
debtpolicy	0.436 (3.02)***		-0.340 (1.04)	
macromanagement	-0.231 (2.09)**		0.307 (1.23)	
transparency	-0.048 (0.28)		0.063 (0.16)	
caccount	0.016 (1.76)*	0.021 (2.49)**	0.014 (0.67)	0.006 (0.59)
caccountsqrd	0.000 (1.42)	0.001 (1.99)**	0.001 (2.20)**	0.000 (1.39)
ldebt	-0.226 (2.57)**	-0.187 (2.55)**	0.187 (0.94)	0.152 (1.60)
ltrade	-0.422 (1.29)	-0.621 (1.88)*	1.121 (1.53)	0.491 (1.14)
lmilitaryex	-0.113 (0.54)	-0.093 (0.41)	-1.295 (2.74)***	-0.638 (2.18)**
fdi_gdp	-0.841 (0.40)	-1.257 (6.75)***	4.407 (0.93)	1.168 (4.82)***
fdisqrd	-2.237 (1.43)	-0.661 (3.00)***	-0.993 (0.28)	0.734 (2.56)**
gdp_gr	0.004 (0.24)	0.029 (2.70)***	-0.068 (2.04)**	-0.025 (1.74)*
lgdp	-0.381 (2.29)**	-0.000 (0.00)	-1.099 (2.93)***	-1.212 (6.58)***
polconiii		-0.304 (0.82)		0.103 (0.21)
pr		-0.023 (0.32)		-0.089 (0.94)
polity		0.001 (0.15)		0.002 (0.21)
_cons	9.956 (2.12)**	2.107 (0.52)	2.431 (0.23)	7.725 (1.46)
N	132	323	132	323
Number of groups	40	73	40	73
R-squared	0.39	0.22	0.41	0.33

$p < 0.1$ ; \*\*  $p < 0.05$ ; \*\*\*  $p < 0.01$   
T-statistics are given in parenthesis

Table 3: Results from FE models



# Results

- Heavy external debts and poorer policy quality against debts actually reduce the grants
- Better macroeconomic management (and to some extent transparency) fosters loans
- Economic tie with Japan had little effect after controlling for policy quality
- More GDP per capita would reduce grants, as expected
- Asian countries are likely to receive more loans, and they receive larger amount of grants as well