Effects of Aid for Trade (AfT) on Trade and Foreign Direct Investments: A Comprehensive Analysis

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1. Introduction

- At the WTO Hong Kong Ministerial Conference in December 2005, the "Aid for Trade (AfT) Initiative" was launched and many high-income member countries pledged to increase their AfT contributions, particularly for least developing countries (LDCs).

- AfT is comprised of aid for economic infrastructure, building productive capacity, and trade policy.

- The World Bank (2011) argues that aid may promote investment, stating "An important dimension of AfT support spans measures to make countries more attractive to foreign direct investment (FDI)" (page 13).

- This paper empirically evaluates the effects of AfT on FDI flows to the recipients as well as on exports and imports of these countries.

1. Introduction

Studies on effects of AfT on trade:

- **Cali and te Velde (2011, World Development)**

  - ✓ AfT has an overall positive and significant impact on exports.

  - ✓ This effect is entirely driven by aid to economic infrastructure, while the other main category of aid for trade, aid to productive capacity, has no discernible effect on exports.

- **Vijil and Wagner (2012, World Economy)**

  - ✓ Gravity framework with bilateral data on aid commitments

  - ✓ "Aid for infrastructure has a strong and positive impact on the infrastructure level", which in turn has a significant positive impact on export performance.

- **Helbe, Mann, and Wilson (2012, R of World Economics)**

  - ✓ For most types of such aid-for-trade facilitation, it is relatively more strongly associated with recipient exports than their imports.

  - ✓ In contrast 'other' types of aid are more strongly associated with recipient imports

1. Introduction

Studies on effects of AfT on FDI:

□ **Lee and Ries (2016, World Development)**

- ✓ Using bilateral data for 25 donor and 120 recipient countries for the period 2004-2012, they estimate the effects of bilateral AfT on greenfield investment relying on "structural" gravity model.

- ✓ They find a strong and significant effect of AfT on greenfield investment, particularly when the donors are top five donors.

- ✓ Among the three categories of AfT, both aid for infrastructure and building productive capacity are found to exert strong effects.

- ✓ Focus only on greenfield FDI flows, but not on cross-border M&A.

1. Introduction

□ **Three points noteworthy.**

✓ Most studies focus on effects of AfT on trade, but not on FDI, except for Lee and Ries (2016).

✓ Most studies on trade does not differentiate different sectors.

✓ Lee and Ries (2016), the only study on effects of AfT on FDI, focus only on greenfield FDI in all industries.

1. Introduction

☐ Aim of the study:

- ✓ This paper empirically evaluates the effects of AfT on FDI flows to the recipients as well as on exports and imports of these countries.

☐ Methodology:

- ✓ We compile bilateral data for 24 donor and 138 recipient countries for the period 2003-2015.

- ✓ We then estimate the effects of AfT on trade and FDI by applying the "semi-structural" and "full structural" gravity model with Poisson Pseudo-Maximum Likelihood (PPML) estimator proposed by Santos Silva and Tenreyro (2006).

1. Introduction

□ **Major contributions:**

✓ Unlike previous studies, we investigate the effects of AfT on goods trade not only in all industries but also in three different sectors – agriculture, mining and manufacturing.

✓ Besides, we assess the effects of AfT on FDI, distinguishing it, in terms of two different modes (greenfield FDI and cross-border M&A) in three different sectors – primary, manufacturing, and services.

1. Introduction

☐ **Main findings**

✓ .....

1. Introduction

□ **Contents of this paper**

1. Introduction

2. Data

3. Empirical Specifications

4. Empirical Results

5. Effects of Aid for Trade in the Asian Region

6. Summary and Concluding Remarks

2. Data

□ **Aid for Trade (AfT)**

✓ The OECD manages the Creditor Reporting System (CRS) that contains flows of Official Development Assistance (ODA).

✓ ODA flows are recorded as aid commitments and disbursements.

✓ Commitments are not always fulfilled and there may be long lags before the funds are disbursed.

✓ Therefore, following Cali te Velde (2011), Ferro et al. (2014), and Lee and Ries (2016), we employ data on disbursements.

2. Data

☐ **Aid for Trade (AfT)**

✓ For our sample of 138 recipients, for the period 2003-2014, the total disbursements of ODA and AfT was US$1,178 billion and US$318.6 billion, respectively.

✓ Thus, AfT accounted for about 27% of total ODA during the period.

✓ Figure 2-1A

✓ Figure 2-1B

Figure 1A&B

Trend of Total Aid and Aid for Trade, 2003-2014

Trend of Total Aid and Aid for Trade Received by ADB Region, 2003-2014

Figure 2A&B

Trend of Aid for Trade, 2003-2014

Trend of Aid for Trade Received by ADB Region, 2003-2014

Figure 2-3A

Share of Different Categories of AfT, 2003-2014

Figure 2-3B

Share of Different Categories of AfT Received by ADB Region, 2003-2014
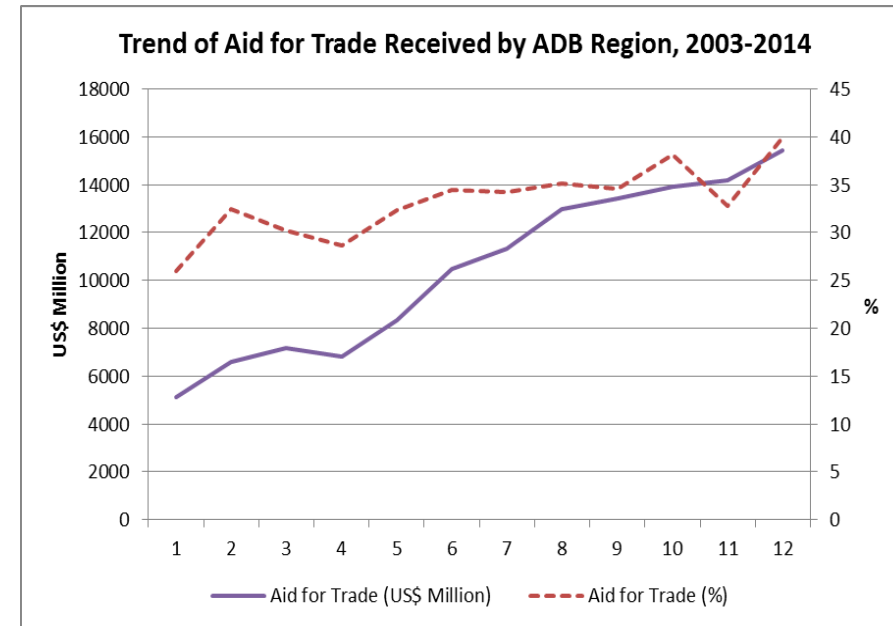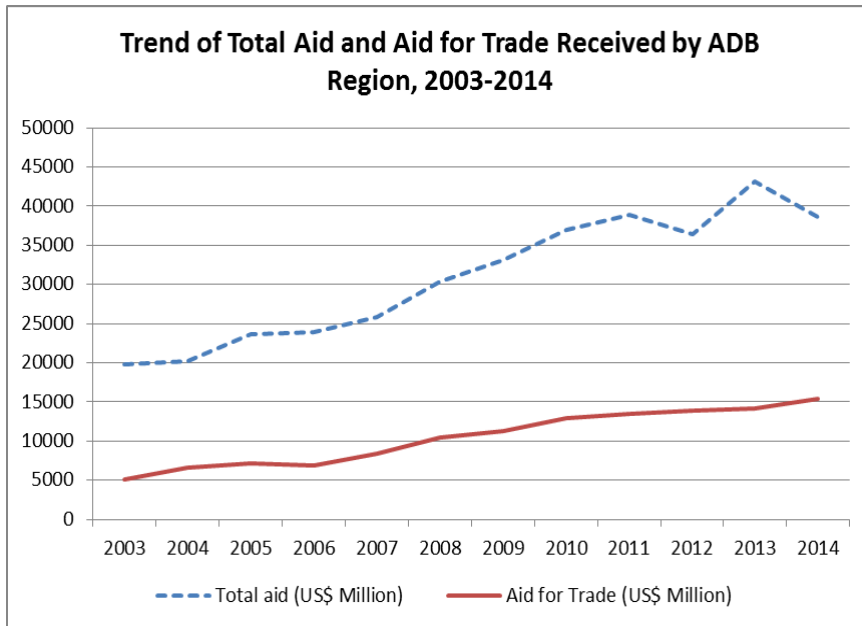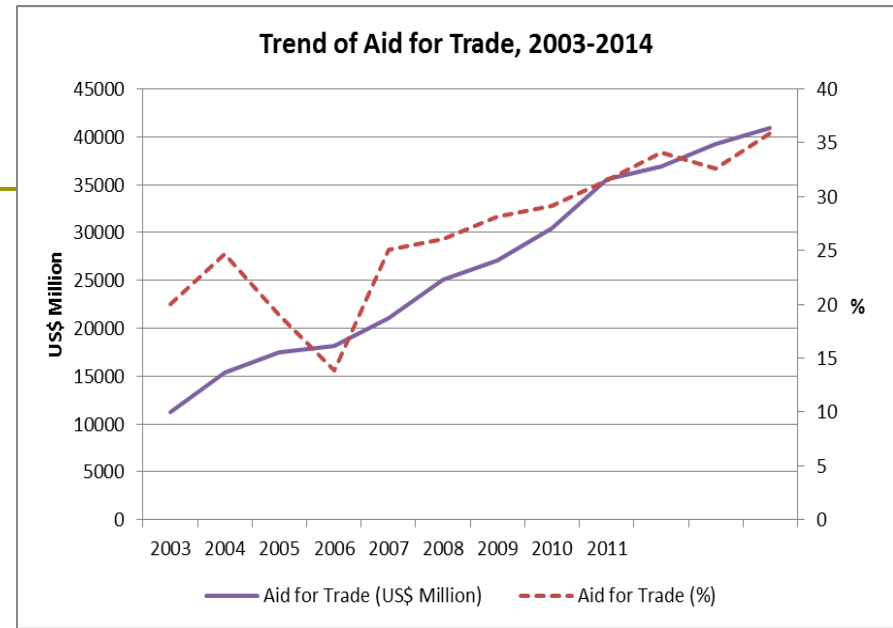
✓ The AfT Initiative (2005) has generated more AfT, particularly that targeted to building infrastructure.

Table 2-1A: Top 25 Recipients of Gross Aid, annual averages during 2003-2014

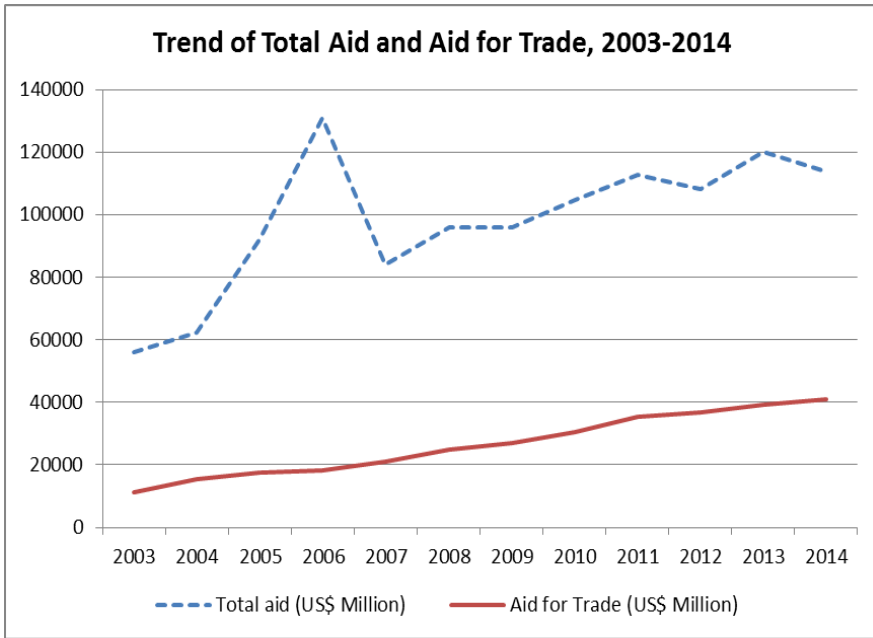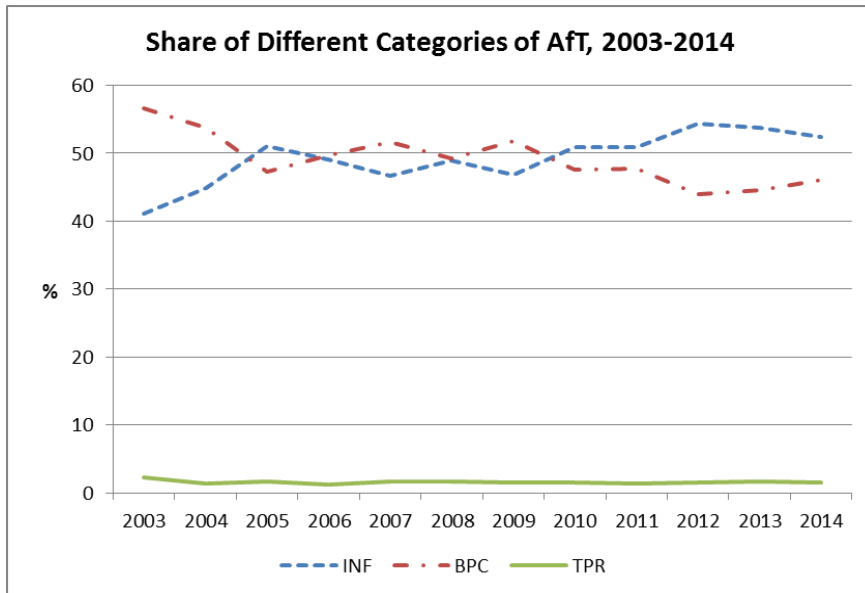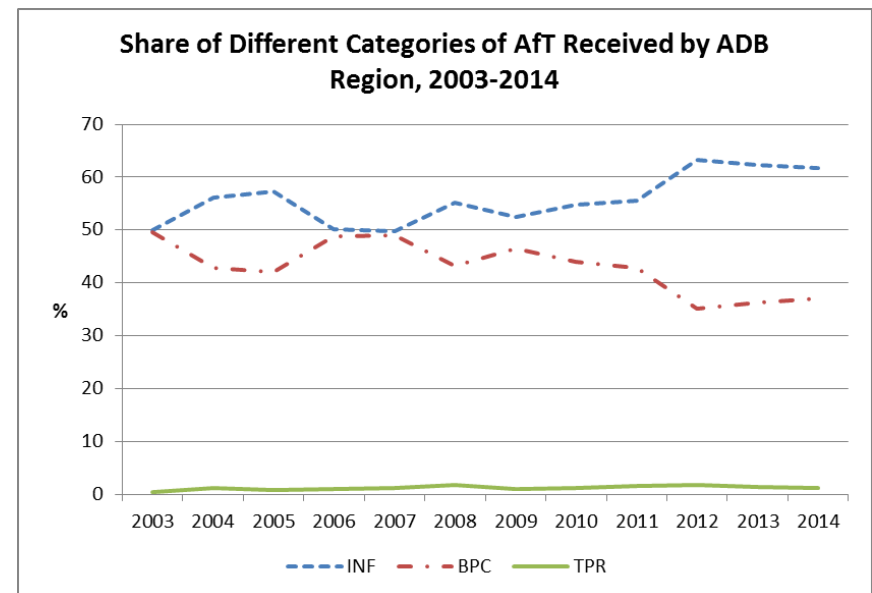|	Recipient	Gross Aid (US$ Mil)	Share (% of total aid)	Share (% of GDP)
1	Iraq	5,587.7	5.69	8.5
2	Afghanistan	4,325.7	4.41	35.7
3	India	3,826.9	3.90	0.3
4	Congo, Democratic Republic of the	3,236.5	3.30	
5	Ethiopia	3,194.1	3.25	14.2
6	Viet Nam	3,134.4	3.19	3.0
7	Nigeria	3,000.9	3.06	1.7
8	Tanzania	2,806.0	2.86	11.6
9	Pakistan	2,690.7	2.74	1.7
10	Indonesia	2,603.9	2.65	0.5
11	China (People's Republic of)	2,456.9	2.50	0.1
12	Bangladesh	2,155.8	2.20	2.1
13	Egypt	2,116.0	2.16	1.2
14	Turkey	1,994.2	2.03	0.3
15	Mozambique	1,941.6	1.98	18.6
16	Ghana	1,916.6	1.95	9.9
17	Kenya	1,872.6	1.91	5.0
18	Uganda	1,841.8	1.88	13.9
19	Morocco	1,503.7	1.53	1.7
20	Zambia	1,469.1	1.50	12.1
21	Côte d'Ivoire	1,288.4	1.31	5.1
22	Senegal	1,171.9	1.19	10.6
23	Mali	1,162.5	1.18	13.2
24	Haiti	1,154.6	1.18	17.6
25	Philippines	1,143.5	1.16	0.8
	Total (25 major recipients)	59,595.9	60.7	
	Total (138 recipients)	98,167.5	100.00	

Note: ADB members are in purple.

Source: Authors' calucation using OECD's DAC database

Table 2-1B: Top 25 Recipients of Aid for Trade (AfT), annual averages during 2003-2014

	Recipient	AfT (US$ Mil)	Share (% of total aid)	Share (% of GDP)
1	India	1,715.8	6.46	0.1
2	Viet Nam	1,684.3	6.34	1.6
3	Afghanistan	1,339.5	5.04	10.9
4	Turkey	1,176.4	4.43	0.2
5	Iraq	1,082.0	4.07	1.6
6	Egypt	905.2	3.41	0.5
7	Indonesia	748.6	2.82	0.1
8	Morocco	737.7	2.78	0.8
9	Ethiopia	723.1	2.72	2.9
10	Tanzania	686.9	2.59	2.6
11	Pakistan	651.8	2.45	0.4
12	China (People's Republic of)	613.7	2.31	0.0
13	Bangladesh	612.2	2.31	0.6
14	Kenya	547.4	2.06	1.4
15	Ghana	527.6	1.99	2.1
16	Mozambique	468.0	1.76	4.4
17	Uganda	463.3	1.74	3.0
18	Philippines	395.9	1.49	0.2
19	Serbia	379.9	1.43	1.0
20	Mali	375.2	1.41	3.9
21	Sri Lanka	359.7	1.35	0.9
22	Congo, Democratic Republic of the	352.1	1.33	
23	Nigeria	348.9	1.31	0.1
24	Tunisia	328.5	1.24	0.8
25	Senegal	307.4	1.16	2.5
	Total (25 major recipients)	17,531.1	66.0	
	Total (138 recipients)	26,553.9	100.00	

Note: ADB members are in purple.

Source: Authors' calucation using OECD's DAC database

✓ Among the Asian economies, those that received smallest amounts of foreign aids were island states in the Pacific, except for Turkmenistan located in Central Asia.

Table 2-2: ADB Recipients of Gross Aid and Aid for Trade, annual average during 2003-2014

	Gross Aid				Aid for Trade (AfT)		
	Recipient	Gross Aid (US$ Mil)	Share (% of GDP)		Recipient	AfT (US$ Mil)	Share (% of GDP)
1	Afghanistan	4,325.7	35.7	1	India	1,715.8	0.1
2	India	3,826.9	0.3	2	Viet Nam	1,684.3	1.6
3	Viet Nam	3,134.4	3.0	3	Afghanistan	1,339.5	10.9
4	Pakistan	2,690.7	1.7	4	Indonesia	748.6	0.1
5	Indonesia	2,603.9	0.5	5	Pakistan	651.8	0.4
6	China (PRC)	2,456.9	0.1	6	China (PRC)	613.7	0.0
7	Bangladesh	2,155.8	2.1	7	Bangladesh	612.2	0.6
8	Philippines	1,143.5	0.8	8	Philippines	395.9	0.2
9	Myanmar	1,048.5	2.1	9	Sri Lanka	359.7	0.9
10	Sri Lanka	926.5	2.4	10	Thailand	306.8	0.1
11	Nepal	728.5	5.5	11	Nepal	223.0	1.7
12	Cambodia	645.1	6.5	12	Cambodia	212.2	2.0
13	Thailand	584.3	0.2	13	Georgia	205.3	1.8
14	Georgia	557.5	5.2	14	Armenia	140.7	1.8
15	Papua New Guinea	462.5	5.4	15	Lao PDR	136.9	2.7
16	Lao PDR	355.8	6.8	16	Mongolia	130.9	2.5
17	Armenia	315.0	4.3	17	Papua New Guinea	123.3	1.4
18	Mongolia	295.8	5.8	18	Azerbaijan	117.6	0.4
19	Kyrgyzstan	291.0	6.7	19	Tajikistan	114.6	2.3
20	Tajikistan	285.6	6.4	20	Kyrgyzstan	98.6	2.3
21	Malaysia	265.0	0.1	21	Uzbekistan	90.2	0.3
22	Timor Leste	234.9		22	Myanmar	86.5	0.2
23	Azerbaijan	231.5	1.0	23	Kazakhstan	64.0	0.1
24	Solomon Islands	230.2	35.9	24	Malaysia	54.3	0.0
25	Uzbekistan	220.5	0.8	25	Bhutan	51.0	3.8
26	Kazakhstan	184.1	0.2	26	Timor Leste	47.9	
27	Micronesia (FSM)	111.3	39.9	27	Solomon Islands	26.9	3.6
28	Bhutan	105.5	8.2	28	Vanuatu	21.8	3.4
29	Samoa	77.4	12.0	29	Samoa	20.0	3.2
30	Vanuatu	75.9	12.4	30	Tonga	15.4	4.0
31	Fiji	70.8	2.1	31	Kiribati	15.1	9.8
32	Marshall Islands	61.4	38.7	32	Fiji	12.9	0.4
33	Tonga	50.6	13.9	33	Micronesia (FSM)	11.9	4.2
34	Maldives	43.8	2.2	34	Maldives	6.6	0.3
35	Kiribati	38.0	24.9	35	Palau	6.4	3.2
36	Palau	27.9	14.2	36	Tuvalu	4.7	15.0
37	Turkmenistan	22.5	0.1	37	Marshall Islands	4.6	2.8
38	Tuvalu	17.7	55.8	38	Cook Islands	4.5	
39	Cook Islands	16.2		39	Turkmenistan	2.9	0.0
	Total (39 ADB recipients)	30,919.1			Total (39 ADB recipients)	10,479.3	

✓ But these island states in the Pacific appear to rely heavily on foreign aids as their shares as percentage of GDP are very high.

Table 2-3: Top 25 Recipients of Gross Aid and AfT in terms of their GDP shares during 2003-2014

	Recipient	Gross Aid (US$ Mil)	Share (% of GDP)		Recipient	AfT (US$ Mil)	Share (% of GDP)
1	Liberia	690.6	65.0	1	Tuvalu	4.7	15.0
2	Tuvalu	17.7	55.8	2	Afghanistan	1,339.5	10.9
3	Micronesia, FS	111.3	39.9	3	Kiribati	15.1	9.8
4	Marshall Islands	61.4	38.7	4	Liberia	92.3	6.4
5	Sao Tome & Principe	60.7	36.4	5	Burundi	115.6	5.8
6	Solomon Islands	230.2	35.9	6	Sao Tome & Principe	9.6	5.0
7	Afghanistan	4,325.7	35.7	7	Cabo Verde	71.9	4.6
8	Burundi	590.5	35.4	8	Gambia	36.1	4.5
9	Kiribati	38.0	24.9	9	Mozambique	468.0	4.4
10	Malawi	1,111.5	23.0	10	Micronesia, FS	11.9	4.2
11	Sierra Leone	537.1	22.1	11	Malawi	215.9	4.1
12	Rwanda	927.3	21.4	12	Tonga	15.4	4.0
13	Guinea-Bissau	150.8	19.2	13	Mali	375.2	3.9
14	Mozambique	1,941.6	18.6	14	Rwanda	198.4	3.9
15	Somalia	587.4	18.0	15	Bhutan	51.0	3.8
16	Haiti	1,154.6	17.6	16	Burkina Faso	307.2	3.7
17	Central African Republic	290.8	16.2	17	Solomon Islands	26.9	3.6
18	Niger	753.5	16.0	18	Madagascar	238.4	3.5
19	Gambia	130.1	15.8	19	Vanuatu	21.8	3.4
20	Eritrea	162.4	14.7	20	Sierra Leone	91.7	3.4
21	Cabo Verde	216.9	14.7	21	Mauritania	116.8	3.3
22	Madagascar	918.4	14.4	22	Guinea-Bissau	25.0	3.3
23	Palau	27.9	14.2	23	Palau	6.4	3.2
24	Ethiopia	3,194.1	14.2	24	Samoa	20.0	3.2
25	Uganda	1,841.8	13.9	25	Dominica	14.2	3.1

Note: ADB members are in purple.

Source: Authors' calucation using OECD's DAC database

✓ U.S. aid was geared toward those countries which experienced internal and/or external conflicts, while Japanese aid concentrated on Asian developing countries.

Table 2-4A: Top 25 Pairs in the order of Gross Aid, total during 2003-2014

	Donor	Recipient	Gross Aid (US$ Mil)	Aid for Trade (US$ Mil)	AfT share (%)
1	United States	Iraq	33,737.9	10,044.5	29.8
2	United States	Afghanistan	22,806.3	8,305.9	36.4
3	Japan	Viet Nam	13,571.6	9,231.6	68.0
4	Japan	India	13,417.7	10,289.5	76.7
5	Japan	Indonesia	12,897.8	5,124.3	39.7
6	Japan	China (PRC)	12,482.4	3,284.4	26.3
7	Japan	Iraq	9,817.3	1,664.1	17.0
8	United Kingdom	Nigeria	7,934.5	656.0	8.3
9	United States	Pakistan	7,880.3	1,430.8	18.2
10	United States	Ethiopia	7,405.8	310.7	4.2
11	United States	Sudan	7,353.3	377.7	5.1
12	Japan	Philippines	7,255.8	2,718.5	37.5
13	Germany	Iraq	6,660.8	6.4	0.1
14	Germany	China (PRC)	6,565.0	1,971.9	30.0
15	United Kingdom	India	6,291.0	1,310.7	20.8
16	United States	Congo, DR	6,233.6	48.4	0.8
17	United States	Jordan	6,162.3	264.4	4.3
18	Japan	Myanmar	5,979.7	264.1	4.4
19	United States	Kenya	5,851.2	231.8	4.0
20	France	Morocco	5,565.9	2,024.7	36.4
21	United States	Colombia	5,451.0	895.2	16.4
22	United States	Egypt	5,374.2	2,037.4	37.9
23	Germany	India	4,989.0	3,087.5	61.9
24	France	Côte d'Ivoire	4,688.0	20.9	0.4
25	Japan	Thailand	4,622.9	3,187.4	68.9

Source: Authors' calucation using OECD's DAC database

✓ Japan has been the major donor of AfT for many recipients.

	Donor	Recipient	Gross Aid (US$ Mil)	Aid for Trade (US$ Mil)	AfT share (%)
	Table 2-4B: Top 24 Recipients of Aid for Trade, total during 2003-2014				
1	Japan	India	13,417.7	10,289.5	76.7
2	United States	Iraq	33,737.9	10,044.5	29.8
3	Japan	Viet Nam	13,571.6	9,231.6	68.0
4	United States	Afghanistan	22,806.3	8,305.9	36.4
5	Japan	Indonesia	12,897.8	5,124.3	39.7
6	Japan	China (PRC)	12,482.4	3,284.4	26.3
7	Japan	Thailand	4,622.9	3,187.4	68.9
8	Germany	India	4,989.0	3,087.5	61.9
9	Japan	Philippines	7,255.8	2,718.5	37.5
10	Japan	Sri Lanka	4,070.1	2,175.4	53.4
11	United States	Egypt	5,374.2	2,037.4	37.9
12	France	Morocco	5,565.9	2,024.7	36.4
13	Japan	Turkey	3,235.7	1,981.4	61.2
14	Germany	China (PRC)	6,565.0	1,971.9	30.0
15	Japan	Iraq	9,817.3	1,664.1	17.0
16	United States	Pakistan	7,880.3	1,430.8	18.2
17	Japan	Bangladesh	3,838.1	1,381.7	36.0
18	United Kingdom	India	6,291.0	1,310.7	20.8
19	Japan	Pakistan	2,726.7	996.5	36.5
20	Germany	Egypt	2,253.0	993.5	44.1
21	Japan	Egypt	1,463.0	980.7	67.0
22	France	Viet Nam	2,284.3	915.1	40.1
23	United States	Colombia	5,451.0	895.2	16.4
24	Germany	Brazil	2,199.0	882.3	40.1
25	Germany	Turkey	2,028.1	797.8	39.3

Source: Authors' calucation using OECD's DAC database

	Donor	Recipient	Gross Aid (US$ Mil)	Aid for Trade (US$ Mil)	AfT share (%)
	Table 2-5A: Top 25 Pairs in the order of Gross Aid, total during 2003-2014, ADB recipients only				
1	United States	Afghanistan	22,806.3	8,305.9	36.4
2	Japan	Viet Nam	13,571.6	9,231.6	68.0
3	Japan	India	13,417.7	10,289.5	76.7
4	Japan	Indonesia	12,897.8	5,124.3	39.7
5	Japan	China (PRC)	12,482.4	3,284.4	26.3
6	United States	Pakistan	7,880.3	1,430.8	18.2
7	Japan	Philippines	7,255.8	2,718.5	37.5
8	Germany	China (PRC)	6,565.0	1,971.9	30.0
9	United Kingdom	India	6,291.0	1,310.7	20.8
10	Japan	Myanmar	5,979.7	264.1	4.4
11	Germany	India	4,989.0	3,087.5	61.9
12	Japan	Thailand	4,622.9	3,187.4	68.9
13	Japan	Afghanistan	4,553.4	733.6	16.1
14	Australia	Papua New Guinea	4,096.9	767.2	18.7
15	Japan	Sri Lanka	4,070.1	2,175.4	53.4
16	Australia	Indonesia	4,025.4	512.1	12.7
17	Japan	Bangladesh	3,838.1	1,381.7	36.0
18	Germany	Afghanistan	3,826.0	397.4	10.4
19	United Kingdom	Afghanistan	3,185.7	669.5	21.0
20	United Kingdom	Bangladesh	3,099.6	494.8	16.0
21	United Kingdom	Pakistan	3,060.3	169.6	5.5
22	France	China (PRC)	3,057.0	460.9	15.1
23	Japan	Pakistan	2,726.7	996.5	36.5
24	United States	Indonesia	2,703.0	219.7	8.1
25	Japan	Malaysia	2,659.0	544.7	20.5
Source: Authors' caluclation using OECD's DAC database					

	Donor	Recipient	Gross Aid (US$ Mil)	Aid for Trade (US$ Mil)	AfT share (%)

Table 2-5B: Top 25 Pairs in the order of Aid for Trade, total during 2003-2014, ADB recipients only

	Donor	Recipient	Gross Aid (US$ Mil)	Aid for Trade (US$ Mil)	AfT share (%)
1	Japan	India	13,417.7	10,289.5	76.7
2	Japan	Viet Nam	13,571.6	9,231.6	68.0
3	United States	Afghanistan	22,806.3	8,305.9	36.4
4	Japan	Indonesia	12,897.8	5,124.3	39.7
5	Japan	China (PRC)	12,482.4	3,284.4	26.3
6	Japan	Thailand	4,622.9	3,187.4	68.9
7	Germany	India	4,989.0	3,087.5	61.9
8	Japan	Philippines	7,255.8	2,718.5	37.5
9	Japan	Sri Lanka	4,070.1	2,175.4	53.4
10	Germany	China (PRC)	6,565.0	1,971.9	30.0
11	United States	Pakistan	7,880.3	1,430.8	18.2
12	Japan	Bangladesh	3,838.1	1,381.7	36.0
13	United Kingdom	India	6,291.0	1,310.7	20.8
14	Japan	Pakistan	2,726.7	996.5	36.5
15	France	Viet Nam	2,284.3	915.1	40.1
16	United States	Georgia	1,967.5	785.3	39.9
17	Australia	Papua New Guinea	4,096.9	767.2	18.7
18	Japan	Afghanistan	4,553.4	733.6	16.1
19	United Kingdom	Afghanistan	3,185.7	669.5	21.0
20	Germany	Indonesia	2,453.6	624.2	25.4
21	Korea	Viet Nam	1,047.7	614.8	58.7
22	Japan	Cambodia	1,524.8	603.3	39.6
23	Japan	Malaysia	2,659.0	544.7	20.5
24	Japan	Mongolia	1,097.7	538.8	49.1
25	Australia	Indonesia	4,025.4	512.1	12.7

Source: Authors' calucation using OECD's DAC database

✓ Australia has been the major donor of both gross aid and AfT for Pacific recipients.

Table 2-6: Donors in the order of Gross Aid and Aid for Trade, total during 2003-2014, Pacific recipients only							
	Donor	Gross Aid (US$ Mil)	Share (%)		Donor	Aid for Trade (US$ Mil)	Share (%)
1	Australia	8,969.75	58.28	1	Australia	1,205.70	45.43
2	United States	2,425.67	15.76	2	Japan	843.35	31.77
3	Japan	1,688.12	10.97	3	New Zealand	283.64	10.69
4	New Zealand	1,197.29	7.78	4	United States	159.69	6.02
5	Portugal	392.26	2.55	5	Norway	48.06	1.81
6	Germany	119.86	0.78	6	Germany	29.90	1.13
7	Norway	117.06	0.76	7	France	20.72	0.78
8	France	83.07	0.54	8	Korea	18.42	0.69
9	Ireland	66.15	0.43	9	Portugal	14.07	0.53
10	Korea	61.66	0.40	10	Ireland	11.40	0.43
11	Spain	56.39	0.37	11	Spain	7.55	0.28
12	United Kingdom	52.09	0.34	12	Canada	4.70	0.18
13	Sweden	44.18	0.29	13	United Kingdom	4.08	0.15
14	Canada	40.27	0.26	14	Italy	0.87	0.03
15	Italy	33.50	0.22	15	Finland	0.79	0.03
16	Netherlands	13.21	0.09	16	Sweden	0.59	0.02
17	Austria	11.17	0.07	17	Netherlands	0.33	0.01
18	Finland	11.06	0.07	18	Austria	0.18	0.01
19	Switzerland	3.50	0.02	19	Switzerland	0.16	0.01
20	Belgium	2.66	0.02	20	Belgium	0.06	0.00
21	Greece	0.90	0.01	21	Czech Republic	0.00	0.00
22	Denmark	0.80	0.01	22	Denmark	0.00	0.00
23	Luxembourg	0.57	0.00	23	Greece	0.00	0.00
24	Czech Republic	0.01	0.00	24	Luxembourg	0.00	0.00
		15,391.20				2,654.24	

Source: Authors' calucation using OECD's DAC database

3. Empirical Specification

□ **The gravity model for Trade (and FDI)**

- Following most theoretical formulations of the structural gravity equation, we can specify $TRADE_{drt}$, trade flows (exports or imports) between donor d and recipient r, as the product of country and bilateral-specific terms:

$$TRADE_{drt} = \alpha_t \frac{M_{dt} M_{rt}}{D_{drt}}$$

M_{dt} and M_{rt} measure the attributes of donor country d and recipient country r at a specific point in time t and α_t is a common time-specific factor. D_{drt} reflects transaction costs between d and r at time t.

3. Empirical Specification

□ **The gravity model for Trade**

$$TRADE_{drt} = \alpha_t \frac{M_{dt} M_{rt}}{D_{drt}}$$

$$M_{rt} = \gamma_1 \ln(AfT\_oth_{rt}) + \gamma_2 \ln(NAfT\_oth_{rt}) + \gamma_3 \ln(POP_{rt}) + \gamma_4 \ln(PCGDP_{rt})$$
$$+ \gamma_5 INFLATION_{jt} + \gamma_6 WGI_{jt}$$

where AfT_oth and NAfT_oth are, respectively, AfT from all donors *other than* from donor d and non-AfT (i.e. all aid less AfT) from all donors *other than* from donor d.

$$D_{drt} = = \beta_1 \ln(AfT_{drt}) + \beta_2 \ln(NAfT_{drt}) + \beta_2 RTA_{drt} + \beta_3 BIT_{drt} + \theta PAIR_{ij} + u_{ijt}$$

where AfT_{drt} is bilateral AfT from donor *d* to recipient *r*, while $NAfT_{drt}$ is bilateral non-AfT from donor *d* to recipient *r*.

where RTA_{drt} and BIT_{drt} are binary variables indicating whether both countries are members of a bilateral/regional trade agreement or a bilateral investment treaty, respectively, and $PAIR_{dr}$ indicates bilateral fixed effects between countries *d* and *r*.

3. Empirical Specification

Two econometric issues

(1) Theory-based structural gravity models require that estimation of a gravity equation take into account not only bilateral distance and transaction costs but also "multilateral resistance" (Anderson and van Wincoop, 2003).

- In the panel data estimations, "multilateral resistance" has been addressed by including time varying exporting and importing country fixed effects.

- However, in our present study, including time varying exporting country (aid recipient) fixed effects is not feasible because it precludes the estimation of Mrt which includes the Third-party AfT (AfT_oth).

- Therefore, in one specification, we will measure the effects of Third-party AfT on bilateral trade by including only (time invariant) recipient fixed effects and time varying donor fixed effects as well as bilateral pair fixed effects. We will call this as "**semi-structural" gravity specification**.

- In another specification, we will assess the effects of bilateral AfT on bilateral trade, by including a full set of time-varying donor and recipient fixed effects as well as bilateral pair fixed effects. We will call this as "**full structural" gravity specification**.

3. Empirical Specification

☐ **Two econometric issues**

(2) Many pairs of countries do not exert FDI flows and hence enter with zeros.

- Taking logs of the dependent variable would drop zero observation and result in biased estimates given that zero flows may indicate that fixed costs exceed expected variable profits (Razin et al., 2004; and Davis and Kristjánsdóttir, 2010).

- As an alternative, Santos Silva and Tenreyro (2006) suggest that the gravity model be estimated in its multiplicative form and use a Poisson pseudo- maximum likelihood (PPML) estimator that is usually used for count data.

- Nonetheless, yearly bilateral trade (and FDI) are often zero and volatile flows.

- Therefore, as an effort to obtain fewer cases of zero values and to reduce random volatility of trade (and FDI) flows, we transform yearly data to triennial data by aggregating the dependent variable for years 2004-2006, 2007-2009, 2010-2012, and 2013-2015.

- And then we match the dependent variable with the AfT variable and other explanatory variables for the preceding periods (i.e. 2003-2005, 2006-2008, 2009-2011, and 2012-2014), thus allowing for both contemporaneous and lagged effects (1-2 years) of AfT on trade flows to accrue.

4. Empirical Results

4.1. Effects on Trade

Table 4-1: Effects of Third-Party AfT on Bilateral Trade - PPML Results								
	Recipient exports to donor				Recipient imports from donor			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	All goods	Agriculture	Mining	Manufacturing	All goods	Agriculture	Mining	Manufacturing
Bilateral AfT $\ln\{\max(1, AfT_{drt})\}$	0.009 (0.010)	0.002 (0.009)	-0.005 (0.025)	-0.005 (0.008)	0.003 (0.008)	0.005 (0.016)	-0.102** (0.051)	0.007 (0.008)
No Bilateral AfT ($NAID_{drt}$)	0.109 (0.118)	0.001 (0.118)	-0.212 (0.268)	0.019 (0.107)	0.013 (0.097)	0.089 (0.214)	-1.443** (0.588)	0.067 (0.097)
Third-Party AfT $\ln(AfT_{-drt})$	0.019 (0.019)	0.077*** (0.025)	0.055 (0.054)	-0.011 (0.018)	0.002 (0.018)	-0.040 (0.034)	-0.041 (0.093)	0.006 (0.018)
Bilateral NAfT $\ln\{\max(1, AfT_{drt})\}$	-0.022* (0.011)	0.014 (0.017)	-0.097*** (0.036)	-0.002 (0.010)	0.006 (0.010)	0.039 (0.037)	-0.076 (0.052)	0.008 (0.011)
No Bilateral NAfT ($NAID_{drt}$)	-0.136 (0.165)	0.216 (0.245)	-1.225** (0.617)	0.084 (0.134)	0.282** (0.135)	0.244 (0.547)	-0.326 (0.745)	0.326** (0.139)
Third-Party NAfT $\ln(NAfT_{-drt})$	0.031 (0.038)	0.015 (0.031)	0.150** (0.061)	0.059 (0.036)	-0.019 (0.019)	0.031 (0.055)	-0.161 (0.140)	-0.027 (0.019)
$\ln Population_{rt}$	-2.226* (1.188)	-0.872 (0.704)	2.416 (2.480)	-1.578* (0.835)	-0.411 (0.411)	-2.958*** (0.802)	-5.019* (2.826)	-0.175 (0.411)
$\ln PCGDP_{rt}$	-0.033 (0.102)	0.095 (0.074)	0.136 (0.226)	-0.134* (0.080)	0.285*** (0.065)	0.570*** (0.129)	-0.466 (0.393)	0.299*** (0.060)
WGI_{rt}	0.387*** (0.114)	-0.038 (0.123)	0.721** (0.288)	0.311*** (0.109)	0.559*** (0.092)	0.267 (0.204)	0.532 (0.473)	0.550*** (0.088)
$Inflation_{rt}$	0.000 (0.000)	0.000 (0.000)	-0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000*** (0.000)	-0.000 (0.000)	0.000 (0.000)
Free Trade Agreement (FTA_{drt} =1 if yes)	-0.007 (0.048)	-0.045 (0.056)	0.154 (0.114)	-0.019 (0.053)	0.065 (0.045)	-0.006 (0.083)	-0.164 (0.178)	0.074 (0.046)
Bilateral Investment Treaty (BIT_{drt}=1 if yes)	0.065 (0.069)	0.009 (0.106)	0.070 (0.098)	0.060 (0.075)	-0.040 (0.060)	0.100 (0.090)	-0.413** (0.199)	-0.038 (0.061)
Fixed Effects								
Pair(dr)	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Country(r)	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Country(d)-Period(t)	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
N	8551	8066	6005	8547	8543	6865	5931	8543
R-sq	0.997	0.987	0.964	0.999	0.995	0.994	0.998	0.996

4.1. Effects on Trade

Table 4-1: Effects of Third-Party AfT on Bilateral Trade - PPML Results

	Recipient exports to donor				Recipient imports from donor			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	All goods	Agriculture	Mining	Manufacturing	All goods	Agriculture	Mining	Manufacturing
Bilateral AfT $\ln\{\max(1, AfT_{drt})\}$	0.009 (0.010)	0.002 (0.009)	-0.005 (0.025)	-0.005 (0.008)	0.003 (0.008)	0.005 (0.016)	-0.102** (0.051)	0.007 (0.008)
No Bilateral AfT $(NAID_{drt})$	0.109 (0.118)	0.001 (0.118)	-0.212 (0.268)	0.019 (0.107)	0.013 (0.097)	0.089 (0.214)	-1.443** (0.588)	0.067 (0.097)
Third-Party AfT $\ln(AfT_{-drt})$	0.019 (0.019)	0.077*** (0.025)	0.055 (0.054)	-0.011 (0.018)	0.002 (0.018)	-0.040 (0.034)	-0.041 (0.093)	0.006 (0.018)
Bilateral NAfT $\ln\{\max(1, AfT_{drt})\}$	-0.022* (0.011)	0.014 (0.017)	-0.097*** (0.036)	-0.002 (0.010)	0.006 (0.010)	0.039 (0.037)	-0.076 (0.052)	0.008 (0.011)
No Bilateral NAfT $(NAID_{drt})$	-0.136 (0.165)	0.216 (0.245)	-1.225** (0.617)	0.084 (0.134)	0.282** (0.135)	0.244 (0.547)	-0.326 (0.745)	0.326** (0.139)
Third-Party NAfT $\ln(NAfT_{-drt})$	0.031 (0.038)	0.015 (0.031)	0.150** (0.061)	0.059 (0.036)	-0.019 (0.019)	0.031 (0.055)	-0.161 (0.140)	-0.027 (0.019)

4.1. Effects on Trade

✓ Positive effect of AfT on recipient exports of agricultural products is due to aid to building productive capacity (BPC)

	Table 4-2: Effects of Components of Third-Party AfT on Bilateral Trade - PPML Results							
	Recipient Exports to donor				Recipient Imports from Recipient			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	All goods	Agriculture	Mining	Manufacturing	All goods	Agriculture	Mining	Manufacturing
Third-party INF	-0.006	0.002	0.073***	-0.023*	0.002	-0.036	0.021	0.005
$\ln(INF_{\sim drt})$	(0.014)	(0.013)	(0.024)	(0.012)	(0.009)	(0.022)	(0.062)	(0.009)
Third-party BPC	0.023	0.084***	0.035	0.020	-0.012	-0.081*	-0.074	-0.010
$\ln(BPC_{\sim drt})$	(0.017)	(0.021)	(0.043)	(0.014)	(0.012)	(0.045)	(0.069)	(0.013)
Third-party TPR	0.006	-0.013	0.029	-0.009	-0.009	0.018	-0.120*	-0.006
$\ln(TPR_{\sim drt})$	(0.016)	(0.010)	(0.024)	(0.010)	(0.007)	(0.018)	(0.065)	(0.007)
Notes: 1. All estimates in each column are obtained using Poisson Pseudo-Maximum Likelihood (PPML) Estimator, with the inclusion of bilateral fixed effects as well as donor-period fixed effects. 2. All other variables such as bilateral aid variables are included in regressions but not reported for the sake of brevity. 3. Standard errors are in parenthesis are based on clustering by country-pair. 4. ***, **, and * indicate the significance levels of 1, 5, and 10 percent, respectively.								

4.1. Effects on Trade

Table 4.3: Effects of Bilateral AfT on Bilateral Trade - PPML Results

	Recipient Exports to donor				Recipient Imports from Recipient			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	All goods	Agriculture	Mining	Manufacturing	All goods	Agriculture	Mining	Manufacturing
Bilateral AfT	0.015*	-0.009	0.032	0.001	0.003	0.018	-0.007	0.006
$\ln\{\max(1, AfT_{drt})\}$	(0.008)	(0.007)	(0.022)	(0.005)	(0.005)	(0.017)	(0.062)	(0.005)
No Bilateral AfT	0.137	-0.091	0.235	0.018	0.020	0.141	-0.427	0.057
$(NAID_{drt})$	(0.090)	(0.094)	(0.239)	(0.063)	(0.067)	(0.197)	(0.697)	(0.063)
Bilateral NAfT	-0.023**	0.012	-0.077**	-0.006	-0.010	-0.002	-0.137**	-0.006
$\ln\{\max(1, NAfT_{drt})\}$	(0.011)	(0.014)	(0.030)	(0.004)	(0.008)	(0.027)	(0.064)	(0.008)
No Bilateral NAfT	-0.223	0.265	-0.743	0.002	-0.033	-0.309	-2.069*	0.012
$(NAID_{drt})$	(0.163)	(0.215)	(0.524)	(0.077)	(0.103)	(0.399)	(1.084)	(0.098)
Free Trade Agreement	0.019	-0.080*	0.099	0.061	0.166***	0.075	-0.087	0.154***
$(FTA_{drt} = 1$ if yes)	(0.050)	(0.043)	(0.091)	(0.041)	(0.031)	(0.078)	(0.175)	(0.031)
Bilateral Investment Treaty	0.034	0.037	0.160	-0.063*	-0.008	0.020	-0.555**	0.009
$(BIT_{drt}=1$ if yes)	(0.059)	(0.051)	(0.102)	(0.038)	(0.041)	(0.087)	(0.240)	(0.043)
Fixed Effects								
Pair(dr)	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Country(d)-Period(t)	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Country(r)-Period(t)	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
N	8986	8459	6233	8975	8978	7184	6191	8978
R-sq	0.999	0.994	0.987	1.000	0.998	0.998	0.999	0.998

Notes: 1. Estimates are obtained with Poisson Psuedo-Maximum Likelihood (PPML) estimator. 2. Standard errors are in parenthesis are based on clustering by country-pair. 3. ***, **, and * indicate the significance levels of 1, 5, and 10 percent, respectively.

✓ Bilateral AfT is found to increase bilateral exports from recipient to donor countries. But this association is significant only at the 10% level.

4.1. Effects on Trade

Table 4-4: Effects of Components of Bilateral AfT on Bilateral Trade - PPML Results

	Recipient exports to donor				Recipient imports from donor			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	All goods	Agriculture	Mining	Manufacturing	All goods	Agriculture	Mining	Manufacturing
Bilateral INF	0.016***	-0.007	0.041***	0.007*	0.002	-0.007	0.061**	0.000
ln{max(1, INF_{drt})}	(0.006)	(0.005)	(0.015)	(0.004)	(0.005)	(0.007)	(0.029)	(0.005)
Bilateral BPC	0.010*	-0.008	-0.004	0.002	0.003	0.006	-0.019	0.006
ln{max(1, BPC_{drt})}	(0.006)	(0.007)	(0.020)	(0.004)	(0.005)	(0.017)	(0.037)	(0.005)
Bilateral TPR	-0.023**	-0.004	-0.055**	-0.004	-0.004	-0.001	-0.051*	0.000
ln{max(1, TPR_{drt})}	(0.010)	(0.008)	(0.023)	(0.005)	(0.007)	(0.013)	(0.029)	(0.007)

Notes: 1. All estimates in each column are obtained using Poisson Pseudo-Maximum Likelihood (PPML) Estimator, with the inclusion of bilateral fixed effects as well as donor-period fixed effects and recipient-period fixed effects. 2. All other variables including the non-Aid dummies (NAD) are included in regressions but not reported for the sake of brevity. 3. Standard errors are in parenthesis are based on clustering by country-pair. 4. ***, **, and * indicate the significance levels of 1, 5, and 10 percent, respectively.

✓ Aid to infrastructure (INF) is found to impact positively and significantly bilateral exports of goods, particularly of mining and manufacturing products.

✓ It is also found to impact positively and significantly bilateral imports of mining products.

4.2. Effects on Trade - Summary

☐ Third country effects of AfT on Trade

- ✓ An increase in AfT from other sources increases exports from recipient countries in primary products.

- ✓ Positive effect of AfT on recipient exports of agricultural products is due to aid to building productive capacity (BPC)

☐ Bilaeral country effects of AfT on FDI

- ✓ Bilateral AfT is found to increase bilateral exports from recipient to donor countries. But this association is significant only at the 10% level.

- ✓ Aid to infrastructure (INF) is found to impact positively and significantly bilateral exports of goods, particularly of mining and manufacturing products.

- ✓ It is also found to impact positively and significantly bilateral imports of mining products

4.2. Effects on FDI

	Number of Greenfield FDI				Value of Greenfield FDI			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	All industries	Primary	Manufacturing	Services	All industries	Primary	Manufacturing	Services
Bilateral AfT $\ln\{\max(1, AfT_{drt})\}$	0.050*** (0.016)	-0.001 (0.024)	0.042** (0.018)	0.081*** (0.022)	0.012 (0.028)	-0.048 (0.059)	0.048* (0.025)	0.108*** (0.033)
No Bilateral AfT ($NAID_{drt}$)	0.528*** (0.202)	-0.124 (0.313)	0.445* (0.227)	0.820*** (0.278)	0.191 (0.310)	-0.269 (0.647)	0.202 (0.374)	1.287*** (0.438)
Third-Party AfT $\ln(AfT_{-drt})$	0.176*** (0.026)	0.218*** (0.052)	0.209*** (0.029)	0.142*** (0.034)	0.130*** (0.047)	0.139 (0.099)	0.192*** (0.047)	0.203*** (0.071)
Bilateral NAfT $\ln\{\max(1, AfT_{drt})\}$	0.029 (0.018)	0.012 (0.033)	0.027 (0.023)	0.031* (0.017)	0.086** (0.042)	0.158** (0.075)	0.039 (0.046)	0.021 (0.049)
No Bilateral NAfT ($NAID_{drt}$)	0.428* (0.257)	0.496 (0.457)	0.491 (0.325)	0.268 (0.294)	1.473*** (0.565)	2.084** (0.968)	1.277** (0.642)	0.643 (0.736)
Third-Party NAfT $\ln(NAfT_{-drt})$	0.009 (0.043)	0.121 (0.077)	-0.017 (0.053)	-0.054 (0.057)	0.185* (0.098)	0.277 (0.179)	-0.017 (0.096)	0.007 (0.100)
$\ln Population_{rt}$	3.391*** (0.751)	1.600 (1.216)	5.318*** (0.901)	3.582*** (0.996)	4.612** (2.106)	7.759*** (2.960)	8.030*** (1.735)	6.076*** (1.855)
$\ln PCGDP_{rt}$	0.293** (0.117)	-0.264 (0.212)	0.338** (0.145)	0.318** (0.136)	0.374* (0.198)	-0.057 (0.464)	0.769*** (0.199)	0.655*** (0.237)
$IWGI_{rt}$	0.894*** (0.255)	0.647** (0.282)	1.037*** (0.336)	0.778*** (0.293)	0.768** (0.364)	1.032* (0.583)	0.912** (0.368)	1.049** (0.445)
$Growth_{rt}$	0.013* (0.007)	-0.004 (0.013)	-0.002 (0.011)	0.034*** (0.009)	0.003 (0.019)	-0.005 (0.030)	0.010 (0.018)	0.001 (0.018)
$Inflation_{rt}$	0.000*** (0.000)	0.000 (0.000)	0.000** (0.000)	-0.032*** (0.010)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	-0.022 (0.014)
Free Trade Agreement (FTA_{drt} =1 if yes)	0.178 (0.119)	-0.011 (0.147)	0.218 (0.143)	0.145 (0.108)	0.161 (0.154)	-0.055 (0.294)	0.427** (0.202)	0.078 (0.239)
Bilateral Investment Treaty (BIT_{drt}=1 if yes)	0.065 (0.115)	-0.124 (0.176)	0.012 (0.122)	0.234 (0.168)	-0.261 (0.227)	-0.785** (0.345)	-0.079 (0.252)	-0.089 (0.265)
Fixed Effects								
Pair(dr)	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Country(r)	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Country(d)-Period(t)	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
N	5371	2398	4117	3851	5347	2390	4101	3835
R-sq	0.970	0.881	0.963	0.969	0.924	0.688	0.945	0.938

Notes: 1. Estimates are obtained with Poisson Psuedo-Maximum Likelihood (PPML) estimator. 2. Standard errors are in

4.2. Effects on FDI

Table 4-5: Effects of Third-Party AfT on Bilateral Greenfield FDI - PPML Results

	Number of Greenfield FDI				Value of Greenfield FDI			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	All industries	Primary	Manufacturing	Services	All industries	Primary	Manufacturing	Services
Bilateral AfT $\ln\{\max(1, AfT_{drt})\}$	0.050*** (0.016)	-0.001 (0.024)	0.042** (0.018)	0.081*** (0.022)	0.012 (0.028)	-0.048 (0.059)	0.048* (0.025)	0.108*** (0.033)
No Bilateral AfT ($NAID_{drt}$)	0.528*** (0.202)	-0.124 (0.313)	0.445* (0.227)	0.820*** (0.278)	0.191 (0.310)	-0.269 (0.647)	0.202 (0.374)	1.287*** (0.438)
Third-Party AfT $\ln(AfT_{-drt})$	0.176*** (0.026)	0.218*** (0.052)	0.209*** (0.029)	0.142*** (0.034)	0.130*** (0.047)	0.139 (0.099)	0.192*** (0.047)	0.203*** (0.071)
Bilateral NAfT $\ln\{\max(1, AfT_{drt})\}$	0.029 (0.018)	0.012 (0.033)	0.027 (0.023)	0.031* (0.017)	0.086** (0.042)	0.158** (0.075)	0.039 (0.046)	0.021 (0.049)
No Bilateral NAfT ($NAID_{drt}$)	0.428* (0.257)	0.496 (0.457)	0.491 (0.325)	0.268 (0.294)	1.473*** (0.565)	2.084** (0.968)	1.277** (0.642)	0.643 (0.736)
Third-Party NAfT $\ln(NAfT_{-drt})$	0.009 (0.043)	0.121 (0.077)	-0.017 (0.053)	-0.054 (0.057)	0.185* (0.098)	0.277 (0.179)	-0.017 (0.096)	0.007 (0.100)

4.2. Effects on FDI

Table 4-6: Effects of Third-Party AfT on Bilateral Cross-border M&A - PPML Results

	Number of Cross-border M&A			
	(1)	(2)	(3)	(4)
	All industries	Primary	Manufacturing	Services
Bilateral AfT $\ln\{\max(1, AfT_{drt})\}$	0.029 (0.020)	0.063 (0.045)	0.026 (0.028)	0.022 (0.025)
No Bilateral AfT ($NAID_{drt}$)	0.368 (0.263)	0.806 (0.574)	0.298 (0.373)	0.314 (0.345)
Third-Party AfT $\ln(AfT_{-drt})$	0.124*** (0.045)	0.104 (0.085)	0.144*** (0.048)	0.133** (0.058)
Bilateral NAfT $\ln\{\max(1, AfT_{drt})\}$	-0.014 (0.029)	0.148** (0.072)	-0.048 (0.035)	0.001 (0.028)
No Bilateral NAfT ($NAID_{drt}$)	-0.195 (0.414)	2.406** (0.965)	-0.624 (0.507)	-0.159 (0.454)
Third-Party NAfT $\ln(NAfT_{-drt})$	0.120 (0.080)	0.058 (0.150)	0.217** (0.100)	0.028 (0.093)
$\ln Population_{rt}$	4.146*** (1.237)	3.329 (3.041)	7.966*** (1.566)	3.372** (1.489)
$\ln PCGDP_{rt}$	-0.154 (0.212)	-0.369 (0.432)	-0.369 (0.283)	0.025 (0.214)
$IWGI_{rt}$	1.046*** (0.305)	1.796*** (0.561)	1.168*** (0.365)	0.946*** (0.352)
$Growth_{rt}$	0.012 (0.012)	-0.032 (0.032)	0.000 (0.019)	0.034** (0.014)
$Inflation_{rt}$	0.000 (0.000)	-0.000 (0.000)	-0.025 (0.016)	0.000** (0.000)
Free Trade Agreement (FTA_{drt} =1 if yes)	0.122 (0.166)	0.162 (0.225)	0.312* (0.189)	-0.120 (0.189)
Bilateral Investment Treaty (BIT_{drt}=1 if yes)	0.232 (0.185)	0.465 (0.349)	0.133 (0.207)	0.197 (0.255)
Fixed Effects				
Pair(dr)	Yes	Yes	Yes	Yes
Country(r)	Yes	Yes	Yes	Yes
Country(d)-Period(t)	Yes	Yes	Yes	Yes
N	3347	1486	2254	2239
R-sq	0.972	0.799	0.952	0.988

Notes: 1. Estimates are obtained with Poisson Psuedo-Maximum Likelihood

4.2. Effects on FDI

Table 4-6: Effects of Third-Party AfT on Bilateral Cross-border M&A - PPML Results

	Number of Cross-border M&A			
	(1)	(2)	(3)	(4)
	All industries	Primary	Manufacturing	Services
Bilateral AfT	0.029	0.063	0.026	0.022
$\ln\{\max(1, AfT_{drt})\}$	(0.020)	(0.045)	(0.028)	(0.025)
No Bilateral AfT	0.368	0.806	0.298	0.314
$(NAID_{drt})$	(0.263)	(0.574)	(0.373)	(0.345)
Third-Party AfT	0.124***	0.104	0.144***	0.133**
$\ln(AfT_{-drt})$	(0.045)	(0.085)	(0.048)	(0.058)
Bilateral NAfT	-0.014	0.148**	-0.048	0.001
$\ln\{\max(1, AfT_{drt})\}$	(0.029)	(0.072)	(0.035)	(0.028)
No Bilateral NAfT	-0.195	2.406**	-0.624	-0.159
$(NAID_{drt})$	(0.414)	(0.965)	(0.507)	(0.454)
Third-Party NAfT	0.120	0.058	0.217**	0.028
$\ln(NAfT_{-drt})$	(0.080)	(0.150)	(0.100)	(0.093)

4.2. Effects on FDI

Table 4-7: Effects of Components of Third-Party AfT on Bilateral Greenfield FDI and Cross-border M&A - PPML Results

	Number of Greenfield FDI				Value of Greenfield FDI				Number of Cross-border M&A			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
	All industries	Primary	Manufacturing	Services	All industries	Primary	Manufacturing	Services	All industries	Primary	Manufacturing	Services
Third-party INF	0.125***	0.100***	0.131***	0.146***	0.125***	0.094	0.145***	0.206***	0.093***	0.074	0.128***	0.125***
$\ln(INF_{\sim drt})$	(0.016)	(0.034)	(0.018)	(0.023)	(0.030)	(0.068)	(0.028)	(0.047)	(0.026)	(0.049)	(0.030)	(0.033)
Third-party BPC	0.024	0.123**	0.069**	-0.061**	-0.013	0.045	0.027	-0.086	-0.005	-0.043	0.007	-0.046
$\ln(BPC_{\sim drt})$	(0.025)	(0.049)	(0.028)	(0.030)	(0.050)	(0.103)	(0.057)	(0.058)	(0.038)	(0.079)	(0.053)	(0.044)
Third-party TPR	0.051***	-0.003	0.058***	0.089***	0.020	0.067	0.029	0.024	0.142***	0.070	0.198***	0.123***
$\ln(TPR_{\sim drt})$	(0.015)	(0.024)	(0.019)	(0.019)	(0.026)	(0.045)	(0.032)	(0.029)	(0.025)	(0.053)	(0.037)	(0.028)

Notes: 1. All estimates in each column are obtained using Poisson Pseudo-Maximum Likelihood (PPML) Estimator, with the inclusion of bilateral fixed effects as well as donor-period fixed effects. 2. All other variables such as bilateral aid variables are included in regressions but not reported for the sake of brevity. 3. Standard errors are in parenthesis are based on clustering by country-pair. 4. ***, **, and * indicate the significance levels of 1, 5, and 10 percent, respectively.

✓ All three components of AfT appear to positively affect greenfield FDI, while aid to INF and aid to TPR increase cross-border M&A.

4.2. Effects on FDI

Table 4.8: Effects of Bilateral AfT on Bilateral Greenfield FDI - PPML Results

	Number of Greenfield FDI				Value of Greenfield FDI			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	All industries	Primary	Manufacturing	Services	All industries	Primary	Manufacturing	Services
Bilateral AfT	0.032***	-0.007	0.033**	0.047***	0.003	-0.092	0.032	0.103***
ln{max(1, AfT_{drt})}	(0.012)	(0.023)	(0.013)	(0.016)	(0.024)	(0.057)	(0.022)	(0.031)
No Bilateral AfT	0.339**	-0.259	0.333*	0.485**	0.122	-0.855	0.090	1.203***
($NAID_{drt}$)	(0.151)	(0.309)	(0.174)	(0.202)	(0.266)	(0.648)	(0.298)	(0.411)
Bilateral NAfT	0.002	-0.011	0.013	0.011	0.061	0.155**	0.045	0.003
ln{max(1, $NAfT_{drt}$)}	(0.013)	(0.031)	(0.017)	(0.018)	(0.038)	(0.079)	(0.039)	(0.057)
No Bilateral NAfT	0.125	0.122	0.267	0.089	1.104**	2.068*	1.254**	0.452
($NAID_{drt}$)	(0.207)	(0.441)	(0.272)	(0.292)	(0.545)	(1.080)	(0.588)	(0.841)
Free Trade Agreement	0.091	0.220	0.136	0.050	0.290*	0.198	0.496**	0.030
(FTA_{drt} =1 if yes)	(0.096)	(0.156)	(0.098)	(0.118)	(0.149)	(0.328)	(0.204)	(0.245)
Bilateral Investment Treaty	-0.035	-0.182	-0.107	0.159	-0.327	-0.833**	-0.248	-0.354
(BIT_{drt}=1 if yes)	(0.093)	(0.184)	(0.094)	(0.142)	(0.219)	(0.425)	(0.217)	(0.250)
Fixed Effects								
Pair(dr)	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Country(d)-Period(t)	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Country(r)-Period(t)	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
N	5658	2330	4123	3848	5635	2319	4111	3829
R-sq	0.988	0.927	0.987	0.992	0.954	0.817	0.966	0.966

Notes: 1. Estimates are obtained with Poisson Psuedo-Maximum Likelihood (PPML) estimator. 2. Standard errors are in parenthesis are based on clustering by country-pair. 3. ***, **, and * indicate the significance levels of 1, 5, and 10 percent, respectively.

4.2. Effects on FDI

Table 4-9: Effects of Bilateral AfT on Bilateral Cross-border M&A - PPML Results				
	Number of Cross-border M&A			
	(1)	(2)	(3)	(4)
	All industries	Primary	Manufacturing	Services
Bilateral AfT $\ln\{\max(1, AfT_{drt})\}$	0.009 (0.015)	0.040 (0.041)	0.017 (0.023)	-0.009 (0.026)
No Bilateral AfT ($NAID_{drt}$)	0.092 (0.192)	0.831 (0.520)	0.081 (0.292)	-0.019 (0.342)
Bilateral NAfT $\ln\{\max(1, NAfT_{drt})\}$	-0.001 (0.032)	0.151** (0.068)	-0.052 (0.036)	0.020 (0.037)
No Bilateral NAfT ($NAID_{drt}$)	0.015 (0.460)	2.244** (0.978)	-0.442 (0.558)	0.083 (0.571)
Free Trade Agreement (FTA_{drt} =1 if yes)	0.231* (0.121)	0.161 (0.318)	0.342** (0.133)	0.162 (0.158)
Bilateral Investment Treaty (BIT_{drt}=1 if yes)	0.363** (0.180)	0.749** (0.308)	0.008 (0.239)	0.300 (0.293)
Fixed Effects				
Pair(dr)	Yes	Yes	Yes	Yes
Country(d)-Period(t)	Yes	Yes	Yes	Yes
Country(r)-Period(t)	Yes	Yes	Yes	Yes
N	3404	1352	2123	2137
R-sq	0.991	0.903	0.978	0.995

4.2. Effects on FDI

Table 4-10: Effects of Components of Bilateral AfT on Bilateral Greenfield FDI and Cross-border M&A - PPML Results

	Number of Greenfield FDI				Value of Greenfield FDI				Number of Cross-border M&A			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
	All industries	Primary	Manufacturing	Services	All industries	Primary	Manufacturing	Services	All industries	Primary	Manufacturing	Services
Bilateral INF $\ln\{\max(1, INF_{drt})\}$	0.013 (0.009)	-0.002 (0.018)	0.008 (0.010)	0.025** (0.012)	0.015 (0.017)	-0.034 (0.043)	-0.016 (0.016)	0.087*** (0.026)	0.019 (0.014)	0.039 (0.030)	-0.020 (0.021)	0.036** (0.017)
Bilateral BPC $\ln\{\max(1, BPC_{drt})\}$	0.027*** (0.010)	-0.002 (0.023)	0.029** (0.012)	0.029** (0.014)	-0.011 (0.022)	-0.105** (0.053)	0.060** (0.026)	0.041 (0.028)	-0.021 (0.015)	-0.056 (0.048)	-0.006 (0.023)	-0.023 (0.021)
Bilateral TPR $\ln\{\max(1, TPR_{drt})\}$	0.001 (0.010)	0.027 (0.024)	0.016 (0.012)	-0.003 (0.012)	0.023 (0.021)	0.119** (0.054)	0.027 (0.024)	-0.037 (0.024)	0.021 (0.017)	0.079* (0.042)	0.032 (0.024)	-0.019 (0.023)

Notes: 1. All estimates in each column are obtained using Poisson Pseudo-Maximum Likelihood (PPML) Estimator, with the inclusion of bilateral fixed effects as well as donor-period fixed effects and recipient-period fixed effects. 2. All other variables including the non-Aid dummies (NAD) are included in regressions but not reported for the sake of brevity. 3. Standard errors are in parenthesis are based on clustering by country-pair. 4. ***, **, and * indicate the significance levels of 1, 5, and 10 percent, respectively.

✓ Aid to infrastructure (INF) positively impacts both greenfield and M&A investments in services industry.

✓ Aid to building productive capacity (BPC) increases greenfield investment in manufacturing and services industries, while it may decrease greenfield investment in primary industry.

✓ Aid to trade policy and regulations (TPR) also appears to contribute to both greenfield and M&A investments in primary industry.

4.2. Effects on FDI - Summary

☐ Third country effects of AfT on FDI

- ✓ An increase in AfT from other sources increases bilateral greenfield FDI in all industries – primary, manufacturing, and services industries.

- ✓ Third-Party AfT also positively impacts cross-border M&A, particularly in manufacturing and services industries.

- ✓ All three components of AfT appear to positively affect greenfield FDI, while aid to INF and aid to TPR increase cross-border M&A.

☐ Bilaeral country effects of AfT on FDI

- ✓ An increase in AfT from a donor country increases bilateral greenfield FDI from the donor country, particularly manufacturing and services industries.

- ✓ No such an effect is found for M&A investment.

- ✓ All three components of AfT appear to positively affect greenfield FDI and cross-border M&A, to some extent.

5. Effects of AfT in the Asian Region

	Recipient exports to donor				Recipient imports from donor			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	All recipients	Non-ADB recipients	ADB recipients	ADB-locked recipients	All recipients	Non-ADB recipients	ADB recipients	ADB-locked recipients
Bilateral AfT $\ln\{\max(1, AfT_{drt})\}$	0.009 (0.010)	0.014 (0.011)	0.004 (0.009)	0.006 (0.020)	0.003 (0.008)	0.005 (0.006)	0.008 (0.014)	-0.014 (0.014)
No Bilateral AfT ($NAID_{drt}$)	0.109 (0.118)	0.131 (0.128)	0.077 (0.118)	0.229 (0.207)	0.013 (0.097)	0.022 (0.074)	0.123 (0.172)	-0.122 (0.158)
Third-Party AfT $\ln(AfT_{-drt})$	0.019 (0.019)	0.078** (0.038)	0.002 (0.014)	-0.061 (0.076)	0.002 (0.018)	0.049*** (0.011)	-0.036* (0.020)	0.049 (0.080)
Bilateral NAfT $\ln\{\max(1, AfT_{drt})\}$	-0.022* (0.011)	-0.041** (0.021)	-0.014 (0.009)	-0.003 (0.030)	0.006 (0.010)	0.002 (0.008)	0.009 (0.016)	-0.008 (0.020)
No Bilateral NAfT ($NAID_{drt}$)	-0.136 (0.165)	-0.502* (0.300)	-0.046 (0.134)	-0.310 (0.340)	0.282** (0.135)	0.173 (0.110)	0.234 (0.197)	-0.184 (0.236)
Third-Party NAfT $\ln(NAfT_{-drt})$	0.031 (0.038)	-0.008 (0.039)	0.495*** (0.076)	-0.022 (0.158)	-0.019 (0.019)	-0.010 (0.016)	0.250*** (0.086)	0.037 (0.105)
$\ln Population_{rt}$	-2.226* (1.188)	-0.170 (1.444)	-1.751* (1.049)	4.661*** (1.727)	-0.411 (0.411)	1.536*** (0.251)	-4.432*** (0.807)	-3.645*** (0.868)
$\ln PCGDP_{rt}$	-0.033 (0.102)	-0.186 (0.210)	0.356*** (0.091)	-0.248 (0.419)	0.285*** (0.065)	0.268*** (0.053)	0.608*** (0.136)	0.872*** (0.265)
WGI_{rt}	0.387*** (0.114)	0.296* (0.156)	-0.348*** (0.125)	1.281** (0.512)	0.559*** (0.092)	0.549*** (0.080)	0.202 (0.166)	-0.386 (0.344)
$Inflation_{rt}$	0.000 (0.000)	0.000*** (0.000)	-0.007 (0.007)	-0.000 (0.012)	0.000 (0.000)	0.000*** (0.000)	0.001 (0.008)	-0.017 (0.013)
Free Trade Agreement (FTA_{drt} =1 if yes)	-0.007 (0.048)	0.104* (0.060)	-0.003 (0.054)	-0.295* (0.155)	0.065 (0.045)	0.101** (0.040)	0.185*** (0.055)	0.390 (0.388)
Bilateral Investment Treaty (BIT_{drt}=1 if yes)	0.065 (0.069)	0.056 (0.068)	0.234*** (0.062)	-0.020 (0.121)	-0.040 (0.060)	-0.047 (0.034)	0.161 (0.131)	-0.134 (0.083)
Fixed Effects								
Pair(dr)	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Country(r)	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Country(d)-Period(t)	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
N	8551	6631	1920	912	8543	6627	1916	908
R-sq	0.997	0.994	0.999	0.996	0.995	0.999	0.997	0.993

Table 4-11: Effects of Third-Party AfT on Bilateral Trade - ADB vs Non-ADB recipients

Notes: 1. Estimates are obtained with Poisson Pseudo-Maximum Likelihood (PPML) estimator. 2. Standard errors are in

5. Effects of AfT in the Asian Region

Table 4-11: Effects of Third-Party AfT on Bilateral Trade - ADB vs Non-ADB recipients

	Recipient exports to donor				Recipient imports from donor			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	All recipients	Non-ADB recipients	ADB recipients	ADB-locked recipients	All recipients	Non-ADB recipients	ADB recipients	ADB-locked recipients
Bilateral AfT $\ln\{\max(1, AfT_{drt})\}$	0.009 (0.010)	0.014 (0.011)	0.004 (0.009)	0.006 (0.020)	0.003 (0.008)	0.005 (0.006)	0.008 (0.014)	-0.014 (0.014)
No Bilateral AfT $(NAID_{drt})$	0.109 (0.118)	0.131 (0.128)	0.077 (0.118)	0.229 (0.207)	0.013 (0.097)	0.022 (0.074)	0.123 (0.172)	-0.122 (0.158)
Third-Party AfT $\ln(AfT_{-drt})$	0.019 (0.019)	0.078** (0.038)	0.002 (0.014)	-0.061 (0.076)	0.002 (0.018)	0.049*** (0.011)	-0.036* (0.020)	0.049 (0.080)
Bilateral NAfT $\ln\{\max(1, AfT_{drt})\}$	-0.022* (0.011)	-0.041** (0.021)	-0.014 (0.009)	-0.003 (0.030)	0.006 (0.010)	0.002 (0.008)	0.009 (0.016)	-0.008 (0.020)
No Bilateral NAfT $(NAID_{drt})$	-0.136 (0.165)	-0.502* (0.300)	-0.046 (0.134)	-0.310 (0.340)	0.282** (0.135)	0.173 (0.110)	0.234 (0.197)	-0.184 (0.236)
Third-Party NAfT $\ln(NAfT_{-drt})$	0.031 (0.038)	-0.008 (0.039)	0.495*** (0.076)	-0.022 (0.158)	-0.019 (0.019)	-0.010 (0.016)	0.250*** (0.086)	0.037 (0.105)

5. Effects of AfT in the Asian Region

	Table 4.12: Effects of Bilateral AfT on Bilateral Trade - ADB vs Non-ADB recipients							
	Recipient Exports to donor				Recipient Imports from Recipient			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	All recipients	Non-ADB recipients	ADB recipients	ADB-locked recipients	All recipients	Non-ADB recipients	ADB recipients	ADB-locked recipients
Bilateral AfT	0.015*	0.020*	0.003	0.020	0.003	0.010**	0.003	-0.013
$\ln\{\max(1, AfT_{drt})\}$	(0.008)	(0.010)	(0.008)	(0.018)	(0.005)	(0.005)	(0.011)	(0.013)
No Bilateral AfT	0.137	0.191	0.040	0.371**	0.020	0.106*	0.052	-0.087
$(NAID_{drt})$	(0.090)	(0.121)	(0.102)	(0.185)	(0.067)	(0.063)	(0.137)	(0.152)
Bilateral NAfT	-0.023**	-0.043*	-0.017**	-0.009	-0.010	-0.007	-0.001	-0.012
$\ln\{\max(1, NAfT_{drt})\}$	(0.011)	(0.022)	(0.007)	(0.033)	(0.008)	(0.007)	(0.012)	(0.022)
No Bilateral NAfT	-0.223	-0.503	-0.067	-0.353	-0.033	-0.016	0.044	-0.248
$(NAID_{drt})$	(0.163)	(0.330)	(0.101)	(0.366)	(0.103)	(0.101)	(0.141)	(0.250)
Free Trade Agreement	0.019	0.043	0.058	-0.465***	0.166***	0.115***	0.216***	0.287
$(FTA_{drt} = 1$ if yes)	(0.050)	(0.063)	(0.064)	(0.135)	(0.031)	(0.024)	(0.043)	(0.382)
Bilateral Investment Treaty	0.034	0.049	0.010	-0.024	-0.008	0.026	-0.077	-0.161**
$(BIT_{drt} = 1$ if yes)	(0.059)	(0.066)	(0.073)	(0.124)	(0.041)	(0.033)	(0.067)	(0.072)
Fixed Effects								
Pair(dr)	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Country(d)-Period(t)	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Country(r)-Period(t)	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
N	8986	7065	1921	912	8978	7061	1917	908
R-sq	0.999	0.998	1.000	0.996	0.998	0.999	0.998	0.994

5. Effects of AfT in the Asian Region

Table 4-13: Effects of Third-Party AfT on Bilateral Greenfield FDI - - ADB vs Non-ADB recipients

	Number of Greenfield FDI				Number of Cross-border M&A			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	All recipients	Non-ADB recipients	ADB recipients	ADB-locked recipients	All recipients	Non-ADB recipients	ADB recipients	ADB-locked recipients
Bilateral AfT $\ln\{\max(1, AfT_{drt})\}$	0.050*** (0.016)	0.031** (0.013)	0.053** (0.024)	0.005 (0.036)	0.029 (0.020)	0.016 (0.021)	0.021 (0.028)	-0.190*** (0.072)
No Bilateral AfT $(NAID_{drt})$	0.528*** (0.202)	0.249 (0.175)	0.607** (0.306)	-0.452 (0.475)	0.368 (0.263)	0.295 (0.268)	-0.003 (0.423)	-1.552 (0.986)
Third-Party AfT $\ln(AfT_{-drt})$	0.176*** (0.026)	0.096*** (0.036)	0.043 (0.027)	0.022 (0.113)	0.124*** (0.045)	0.119 (0.078)	0.134*** (0.049)	0.229 (0.272)
Bilateral NAfT $\ln\{\max(1, AfT_{drt})\}$	0.029 (0.018)	-0.023 (0.020)	0.063*** (0.022)	-0.017 (0.067)	-0.014 (0.029)	0.011 (0.036)	-0.035* (0.021)	0.197 (0.181)
No Bilateral NAfT $(NAID_{drt})$	0.428* (0.257)	0.021 (0.283)	0.461 (0.326)	0.445 (0.824)	-0.195 (0.414)	0.076 (0.520)	-0.234 (0.335)	1.337 (2.172)
Third-Party NAfT $\ln(NAfT_{-drt})$	0.009 (0.043)	-0.034 (0.049)	0.212* (0.128)	0.491* (0.252)	0.120 (0.080)	0.111 (0.070)	0.158 (0.215)	-0.444 (0.545)
$\ln Population_{rt}$	3.391*** (0.751)	2.246*** (0.774)	6.735*** (1.202)	0.771 (2.382)	4.146*** (1.237)	0.512 (1.082)	9.428*** (2.166)	15.003*** (3.926)
$\ln PCGDP_{rt}$	0.293** (0.117)	-0.180 (0.140)	1.183*** (0.216)	1.071** (0.437)	-0.154 (0.212)	0.693** (0.312)	-0.693** (0.291)	-2.426** (1.087)
$IWGI_{rt}$	0.894*** (0.255)	1.217*** (0.239)	0.039 (0.440)	-0.565 (0.585)	1.046*** (0.305)	0.504* (0.273)	1.305** (0.551)	1.049 (1.200)
$Growth_{rt}$	0.013* (0.007)	0.048*** (0.009)	0.019 (0.012)	0.034*** (0.013)	0.012 (0.012)	0.037** (0.016)	-0.032 (0.022)	-0.006 (0.036)
$Inflation_{rt}$	0.000*** (0.000)	0.000*** (0.000)	-0.028*** (0.011)	-0.026 (0.024)	0.000 (0.000)	0.000* (0.000)	-0.006 (0.015)	0.021 (0.068)
Free Trade Agreement $(FTA_{drt} =1$ if yes)	0.178 (0.119)	-0.100 (0.072)	0.322 (0.198)	0.209 (0.409)	0.122 (0.166)	-0.415*** (0.122)	0.640*** (0.203)	-1.166 (0.860)
Bilateral Investment Treaty $(BIT_{drt}=1$ if yes)	0.065 (0.115)	-0.111 (0.122)	0.214 (0.194)	-0.177 (0.352)	0.232 (0.185)	0.170 (0.160)	0.754*** (0.184)	-0.489 (0.702)
Fixed Effects								
Pair(dr)	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Country(r)	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Country(d)-Period(t)	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
N	5371	3807	1564	608	3347	2434	899	244
R-sq	0.970	0.959	0.986	0.860	0.972	0.933	0.996	0.772

Notes: 1. Estimates are obtained with Poisson Psuedo-Maximum Likelihood (PPML) estimator. 2. Standard errors are in

5. Effects of AfT in the Asian Region

Table 4-13: Effects of Third-Party AfT on Bilateral Greenfield FDI - - ADB vs Non-ADB recipients

	Number of Greenfield FDI				Number of Cross-border M&A			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	All recipients	Non-ADB recipients	ADB recipients	ADB-locked recipients	All recipients	Non-ADB recipients	ADB recipients	ADB-locked recipients
Bilateral AfT $\ln\{\max(1, AfT_{drt})\}$	0.050*** (0.016)	0.031** (0.013)	0.053** (0.024)	0.005 (0.036)	0.029 (0.020)	0.016 (0.021)	0.021 (0.028)	-0.190*** (0.072)
No Bilateral AfT $(NAID_{drt})$	0.528*** (0.202)	0.249 (0.175)	0.607** (0.306)	-0.452 (0.475)	0.368 (0.263)	0.295 (0.268)	-0.003 (0.423)	-1.552 (0.986)
Third-Party AfT $\ln(AfT_{-drt})$	0.176*** (0.026)	0.096*** (0.036)	0.043 (0.027)	0.022 (0.113)	0.124*** (0.045)	0.119 (0.078)	0.134*** (0.049)	0.229 (0.272)
Bilateral NAfT $\ln\{\max(1, AfT_{drt})\}$	0.029 (0.018)	-0.023 (0.020)	0.063*** (0.022)	-0.017 (0.067)	-0.014 (0.029)	0.011 (0.036)	-0.035* (0.021)	0.197 (0.181)
No Bilateral NAfT $(NAID_{drt})$	0.428* (0.257)	0.021 (0.283)	0.461 (0.326)	0.445 (0.824)	-0.195 (0.414)	0.076 (0.520)	-0.234 (0.335)	1.337 (2.172)
Third-Party NAfT $\ln(NAfT_{-drt})$	0.009 (0.043)	-0.034 (0.049)	0.212* (0.128)	0.491* (0.252)	0.120 (0.080)	0.111 (0.070)	0.158 (0.215)	-0.444 (0.545)

5. Effects of AfT in the Asian Region

	Table 4.14: Effects of Bilateral AfT on Bilateral Greenfield FDI - - ADB vs Non-ADB recipients							
	Number of Greenfield FDI				Number of Cross-border M&A			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	All recipients	Non-ADB recipients	ADB recipients	ADB-locked recipients	All recipients	Non-ADB recipients	ADB recipients	ADB-locked recipients
Bilateral AfT $\ln\{\max(1, AfT_{drt})\}$	0.032*** (0.012)	0.009 (0.010)	0.051** (0.022)	0.046 (.)	0.009 (0.015)	-0.003 (0.018)	0.006 (.)	-0.300*** (0.065)
No Bilateral AfT ($NAID_{drt}$)	0.338** (0.151)	-0.001 (0.136)	0.650** (0.279)	0.463 (.)	0.092 (0.192)	0.059 (0.229)	-0.247 (.)	-2.996*** (0.825)
Bilateral NAfT $\ln\{\max(1, NAfT_{drt})\}$	0.002 (0.013)	-0.023 (0.019)	0.032 (0.022)	-0.012 (.)	-0.001 (0.032)	0.046 (0.030)	-0.053 (.)	0.293** (0.132)
No Bilateral NAfT ($NAID_{drt}$)	0.126 (0.208)	0.021 (0.269)	0.085 (0.348)	0.512 (.)	0.015 (0.460)	0.630 (0.454)	-0.456 (.)	2.766* (1.637)
Free Trade Agreement (FTA_{drt} =1 if yes)	0.091 (0.096)	-0.048 (0.083)	0.203 (0.125)	-0.672 (.)	0.231* (0.121)	-0.117 (0.106)	0.481 (.)	-0.247 (1.125)
Bilateral Investment Treaty (BIT_{drt}=1 if yes)	-0.035 (0.093)	-0.123 (0.105)	0.118 (0.134)	-0.189 (.)	0.363** (0.180)	0.308* (0.168)	0.391 (.)	-0.442 (0.560)
Fixed Effects								
Pair(dr)	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Country(d)-Period(t)	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Country(r)-Period(t)	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
N	5643	3993	1650	693	3404	2464	924	276
R-sq	0.988	0.983	0.992	0.869	0.991	0.979	0.996	0.874

Notes: 1. Estimates are obtained with Poisson Psuedo-Maximum Likelihood (PPML) estimator. 2. Standard errors are in parenthesis are based on clustering by country-pair. 3. ***, **, and * indicate the significance levels of 1, 5, and 10 percent, respectively.

5. Summary and Concluding Remarks

☐ Main findings

- ✓ AfT has a marginally significant effect on trade.

- ✓ Particularly, AfT to infrastructure is found to have a significant positive effect on both recipient's exports and imports of mining products.

- ✓ In contrast, AfT is found to have a significant positive effect on greenfield FDI in all industries – primary, manufacturing, and services industries, as well as on cross-border M&A in manufacturing and services industries.

- ✓ It is also found that all three components of AfT positively affect greenfield FDI, while aid to infrastructure and aid to trade policy and regulations increase cross-border M&A.

5. Summary and Concluding Remarks

☐ **Main findings (Cont.)**

✓ This paper also investigates if ADB's developing member countries are different from other recipient countries.

✓ It is found that AfT has a positive effect on non-ADB recipients' exports and imports, but not on the ADB recipients' exports and imports.

✓ In contrast, AfT is found to have a positive effect, to some extent, on both greenfield FDI and M&A in the ADB region.

✓ This finding suggests that there is a great need of the ADB's concerted efforts to increase the effectiveness of AfT with respect to recipients' trade performance.