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## **Untying Aid: The Case of Canadian Food Assistance**

**Ryan Cardwell and Pascal Ghazalian**

*Selected Paper prepared for presentation at the International Agricultural Trade Research Consortium's (IATRC's) 2017 Annual Meeting: Globalization Adrift, December 3-5, 2017, Washington, DC.*

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# Untying Aid: The Case of Canadian Food Assistance

International Agricultural Trade Research Consortium  
Annual Meeting  
Washington, DC  
December 5, 2017





1. Tied aid
2. Food Assistance
3. Canadian untying
4. Modeling
5. Data
6. Results



- Loans and grants that require procurement of goods & services from a restricted number of countries (usually the donor)



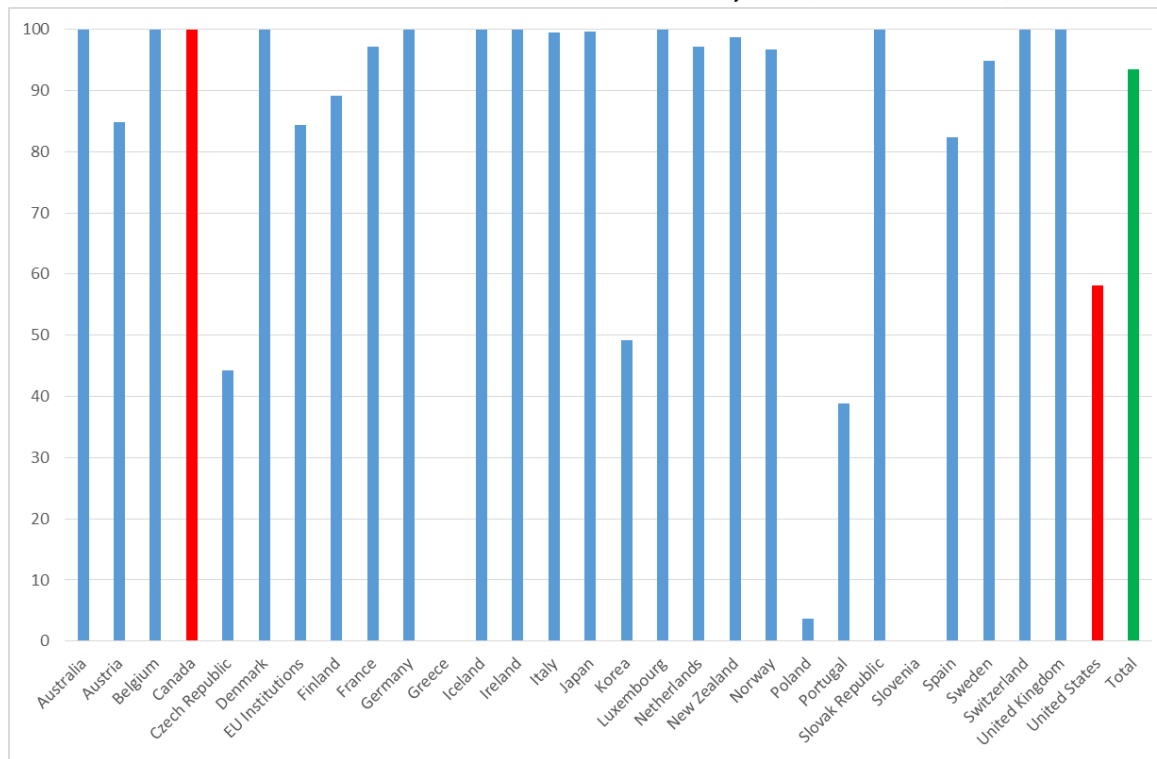
## 1. Tied Aid

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- OECD Recommendation on Untying ODA (2001)
  - Untie aid to LDCs and HIPC
  - Untying food aid “...left up to Members...”

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Share of ODA that is untied, % (OECD CRS; 2015)





Food assistance was traditionally tied (“in-kind” aid), and linked to domestic ag policy

### 1. US

- Largely funded through farm bill
- Sourced from USDA (CCC) stocks during loan-rate programme
- Domestic sourcing, processing, and shipping (cargo preference) restrictions



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### 4. Canada

- Untied in 2005, 2008



### Tying food aid to domestic procurement

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  - 1) Procurement
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  - Donor-country farmer support vs. humanitarian relief/development assistance
- Does tying aid reduce its effectiveness?
  - What is the measured outcome of aid effectiveness?
  - Closer link between inputs and outputs for food assistance (esp. emergency food aid)

### 3. Canadian Untying



- Procurement tied to Canadian Wheat Board
  - “overpaid” by ~C\$200m from 1980-1994 (CIDA, 2006)
  - required to procure higher-than-needed grades of wheat



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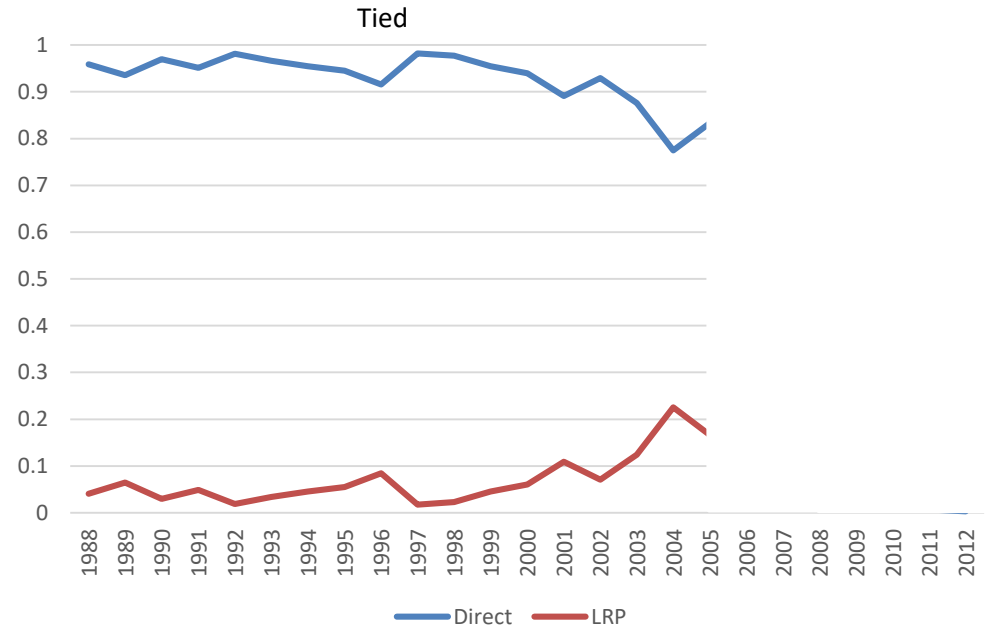
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Tying rate reduced to 50% (2005)

Direct vs. LRP procurement, % (WFP INTERFAIS)

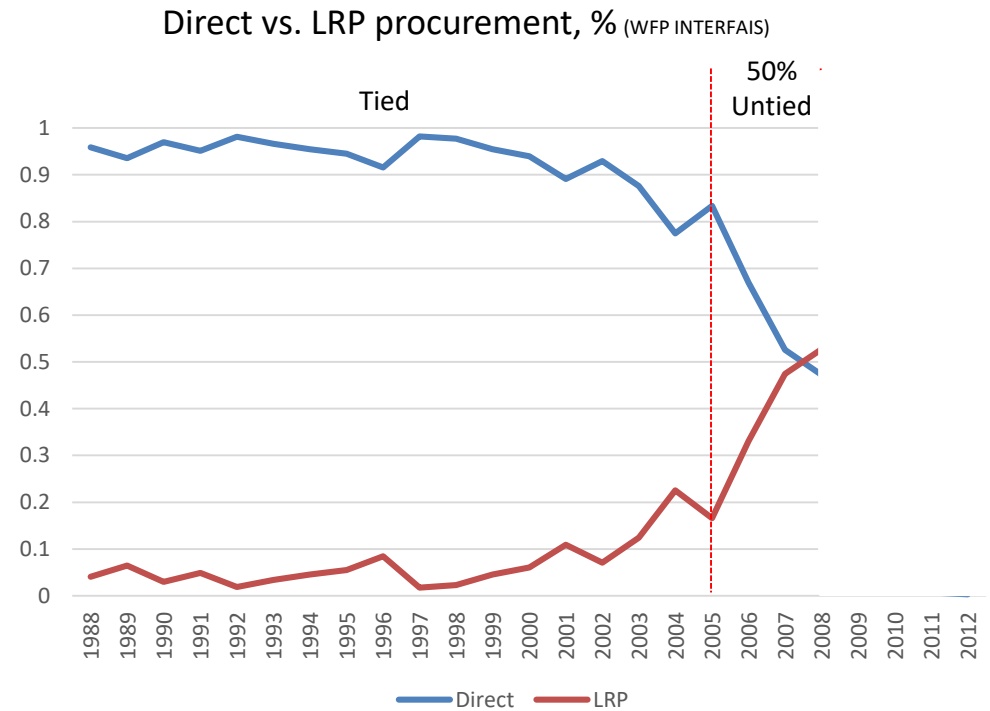


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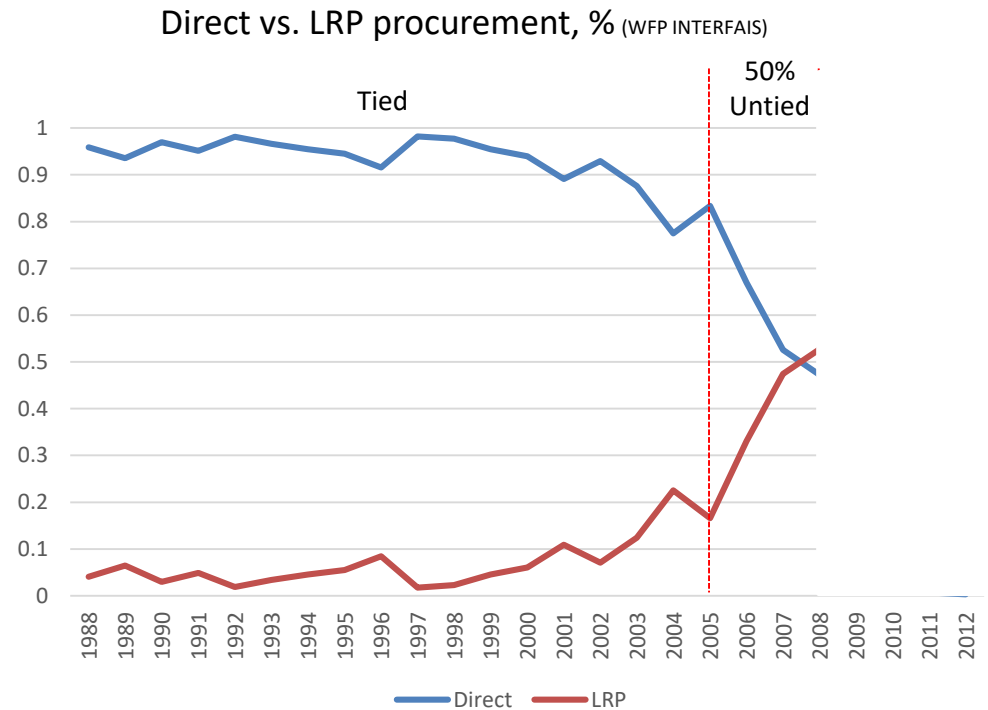


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- 2007 Food Crisis
  - WFP appeals
  - Budget constraints



Tying requirements eliminated (2008)





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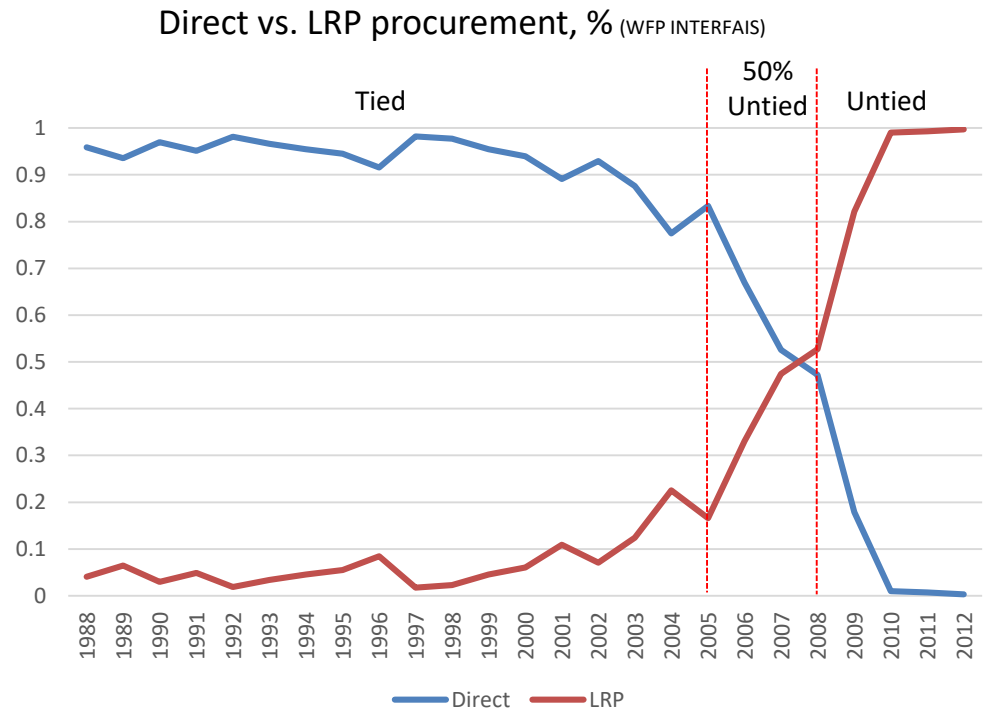


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## 4. Modelling

### Modelling the effects of untying food aid procurement

- Expected effects of untying:
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  - Conventional bilateral aid allocation model; Alesina & Dollar (2000)
- Food aid allocation
  - Nunn & Qian (2010)
  - Kuhlitz *et al.* (2010)
  - Larue *et al.* (2017)







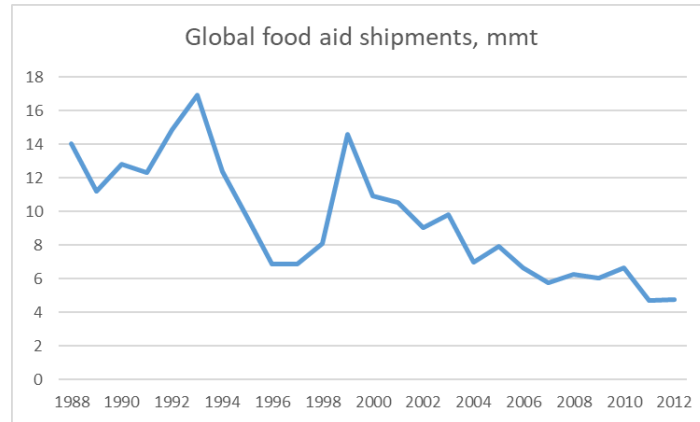
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### Challenges in identification:

- Zeros

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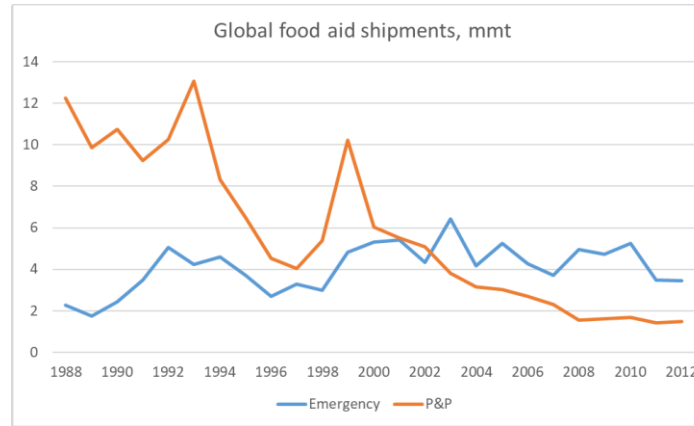
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- Programme and Project aid



WFP INTERFAIS

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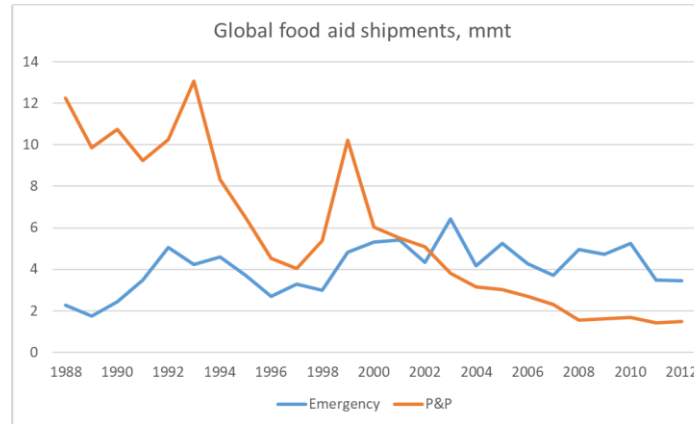
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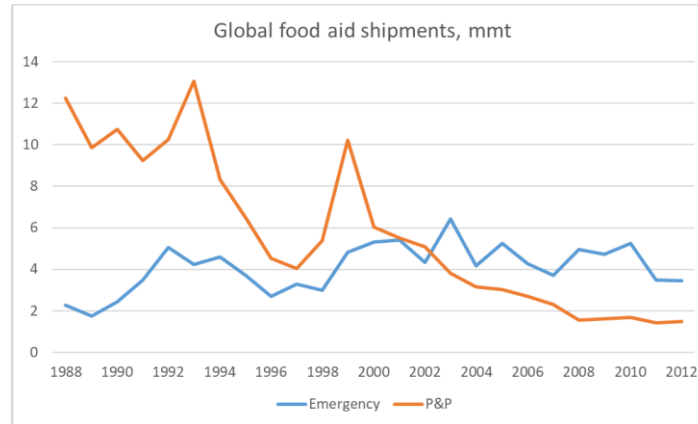


WFP INTERFAIS

- Composition effect of changing aid basket
  - maize, rice, wheat

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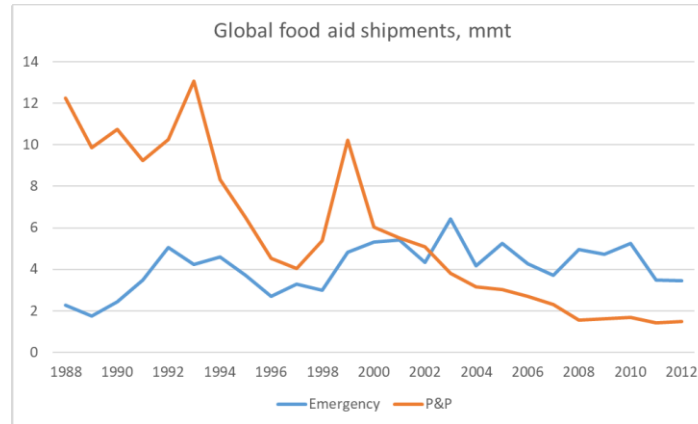


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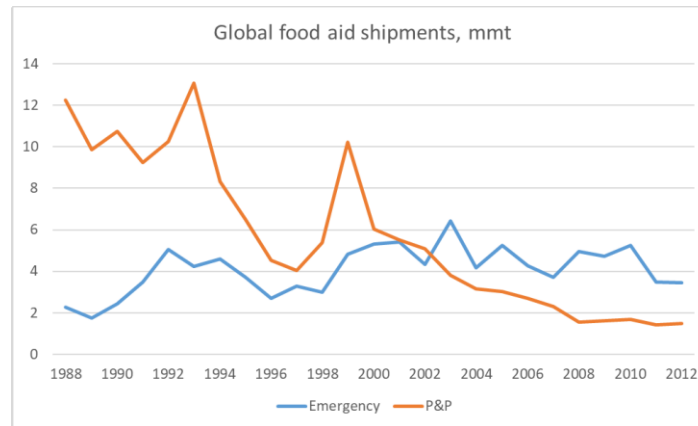


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- Composition effect of changing aid basket
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  - Development aid/budget support (P&P) vs. humanitarian aid (emergency)
- Stepwise untying (partial 2005 → full 2008)
- Controlling for aid budget (Canada vs. US)
  - Congressional budget support without Cargo Preference Restrictions?

### Empirical specification

Two part model:

- 1) Probability of receiving food aid (logit)
- 2) Quantity of aid, conditional on receiving non-zero aid (PPML)

$$FA_{i,t} = \Lambda_{i,t} \exp(X_{i,t}) \eta_{i,t}$$

where  $\Lambda_{it} = \begin{cases} 1 & \text{if } Z_{i,t} \geq \vartheta_{i,t} \\ 0 & \text{otherwise} \end{cases}$  ;  $Z_{i,t}$  represents the determinants of positive food aid





- WFP INTERFAIS – discontinued

## 5. Data

- WFP INTERFAIS – discontinued
- WFP transaction-level dataset

	year	donor	recipient	type	commodity	quantity	gequantity	del_mode	origin	dhip_date	arr_date
7734	2006	Canada	Tanzania	Project	HARD RED WINTER WHEAT	50.451	50.451	Direct	Canada	02/09/2006	A17/10/2006
7735	2006	Canada	Tanzania	Project	HARD RED WINTER WHEAT	34	34	Triangular	Malaysia	27/11/2006	A27/12/2006
7736	2006	Canada	Tanzania	Project	HARD RED WINTER WHEAT	48.25	48.25	Direct	Canada	27/08/2006	A04/10/2006
7737	2006	Canada	Tanzania	Emergency	HARD RED WINTER WHEAT	5603.85	5603.85	Triangular	South Africa	12/06/2006	A18/06/2006
7738	2006	Canada	Timor Leste	Emergency	HARD RED WINTER WHEAT	31	31	Triangular	Indonesia	01/08/2006	E05/09/2006
7739	2006	Canada	Timor Leste	Emergency	HARD RED WINTER WHEAT	152.928	152.928	Triangular	Indonesia	22/08/2006	E29/09/2006
7740	2006	Canada	Uganda	Emergency	HARD RED WINTER WHEAT	473	473	Local		15/07/2006	R15/07/2006

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	year	donor	recip	gequantity
3415	2006	CAN	TZA	5603.85
3416	2006	CAN	UGA	6712.996
3417	2006	CAN	UKR	0
3418	2006	CAN	URY	0

- WFP INTERFAIS – discontinued

	Mean	Std. Dev.	Min	Max
Food Aid (mt in G.E.)	627.95	4,344.64	0	114,180.30
Humanitarian Budget (millions US\$)	181.08	167.16	27.95	558.90
GDP (US\$)	7,827.00	12,871.59	64.81	112,028.60
Violence	0.17	0.38	0	1
Intensity	0.22	0.51	0	2
Disaster	0.59	0.49	0	1
Affected (mil.)	1.21	12.90	0	342.00
Exports (millions US\$)	1,520.00	17,400.00	0	355,000.00
Donor Distance (km)	9,139.43	3,170.84	2,079.30	15,483.10
Weighted Price (US\$)*	168.66	73.10	72.00	370.00
Origin Distance (km)*	5,679.81	4,785.03	36.45	15,507.14
< 2006	7,374.63	4,669.55	36.45	15,507.14
2006 - 2008	3,173.90	3,799.36	72.12	13,528.31
> 2008	2,477.05	3,065.79	42.31	14,125.52
Untie 2005-2008	0.12	0.33	0	1
Untie 2008	0.16	0.37	0	1

\* conditional on food aid > 0

	Logit, ME $P(FA_{i,t} > 0)$
<i>ln</i> (Aid Budget)	0.357a (0.006)
<i>ln</i> (GDPC)	-0.046a (0.003)
Violence (indicator)	0.035a (0.008)
Violence (intensity)	
Natural Disaster (indicator)	0.022a (0.006)
Natural Disaster (# affected)	
<i>ln</i> (Exports)	0.008a (0.001)
<i>ln</i> (Donor Distance)	0.011 (0.008)
<i>ln</i> (Origin Distance)	
Weighted Price	
Untied 2005-2008	-0.000 (0.011)
Untied 2008	0.008 (0.012)

Standard errors in parentheses with “a”, “b”, and “c” denoting statistical significance at the 1%, 5%, and 10% level, respectively.

	Logit, ME $P(FA_{i,t} > 0)$	Model A $FA_{i,t}$
<i>ln</i> (Aid Budget)	0.357a (0.006)	-0.356b (0.163)
<i>ln</i> (GDPC)	-0.046a (0.003)	-1.055a (0.129)
Violence (indicator)	0.035a (0.008)	
Violence (intensity)		0.604a (0.119)
Natural Disaster (indicator)	0.022a (0.006)	
Natural Disaster (# affected)		-0.005 (0.025)
<i>ln</i> (Exports)	0.008a (0.001)	0.390a (0.070)
<i>ln</i> (Donor Distance)	0.011 (0.008)	0.033 (0.193)
<i>ln</i> (Origin Distance)		
Weighted Price		
Untied 2005-2008	-0.000 (0.011)	0.459 (0.382)
Untied 2008	0.008 (0.012)	0.856c (0.454)

Standard errors in parentheses with “a”, “b”, and “c” denoting statistical significance at the 1%, 5%, and 10% level, respectively.

	Logit, ME $P(FA_{i,t} > 0)$	Model A $FA_{i,t}$	Model B $FA_{i,t}$
<i>ln</i> (Aid Budget)	0.357a (0.006)	-0.356b (0.163)	-0.359b (0.149)
<i>ln</i> (GDPC)	-0.046a (0.003)	-1.055a (0.129)	-0.912a (0.111)
Violence (indicator)	0.035a (0.008)		
Violence (intensity)		0.604a (0.119)	0.589a (0.112)
Natural Disaster (indicator)	0.022a (0.006)		
Natural Disaster (# affected)		-0.005 (0.025)	-0.006 (0.023)
<i>ln</i> (Exports)	0.008a (0.001)	0.390a (0.070)	0.360a (0.065)
<i>ln</i> (Donor Distance)	0.011 (0.008)	0.033 (0.193)	0.264 (0.179)
<i>ln</i> (Origin Distance)			0.486a (0.077)
Weighted Price			
Untied 2005-2008	-0.000 (0.011)	0.459 (0.382)	0.777b (0.342)
Untied 2008	0.008 (0.012)	0.856c (0.454)	1.547a (0.450)

Standard errors in parentheses with “a”, “b”, and “c” denoting statistical significance at the 1%, 5%, and 10% level, respectively.

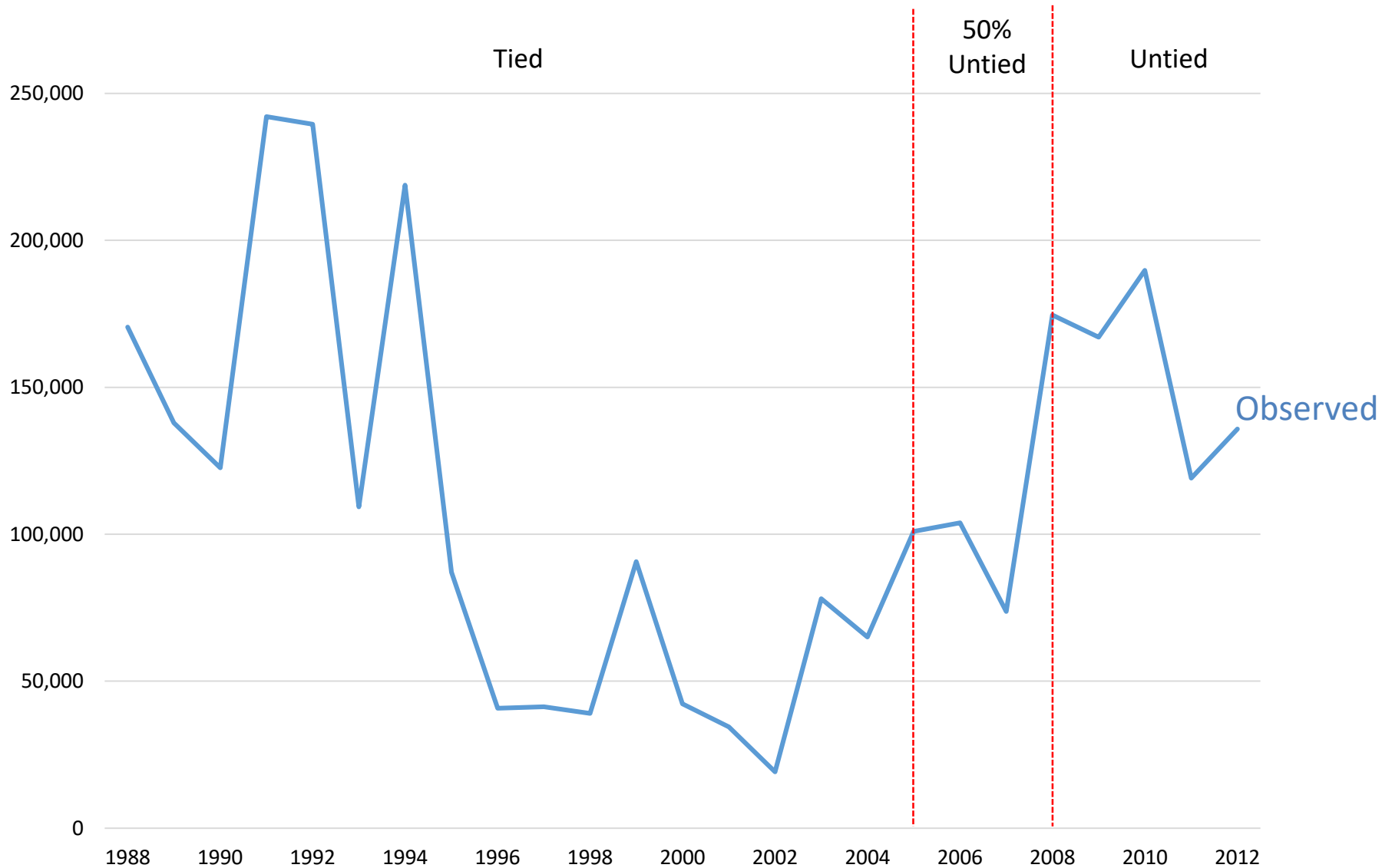
	Logit, ME $P(FA_{i,t} > 0)$	Model A $FA_{i,t}$	Model B $FA_{i,t}$	Model C $FA_{i,t}$
$\ln(\text{Aid Budget})$	0.357a (0.006)	-0.356b (0.163)	-0.359b (0.149)	-0.335b (0.144)
$\ln(\text{GDPC})$	-0.046a (0.003)	-1.055a (0.129)	-0.912a (0.111)	-0.895a (0.108)
Violence (indicator)	0.035a (0.008)			
Violence (intensity)		0.604a (0.119)	0.589a (0.112)	0.586a (0.023)
Natural Disaster (indicator)	0.022a (0.006)			
Natural Disaster (# affected)		-0.005 (0.025)	-0.006 (0.023)	-0.005 (0.022)
$\ln(\text{Exports})$	0.008a (0.001)	0.390a (0.070)	0.360a (0.065)	0.376a (0.062)
$\ln(\text{Donor Distance})$	0.011 (0.008)	0.033 (0.193)	0.264 (0.179)	0.259 (0.182)
$\ln(\text{Origin Distance})$			0.486a (0.077)	0.499a (0.079)
Weighted Price				-0.715b (0.377)
Untied 2005-2008	-0.000 (0.011)	0.459 (0.382)	0.777b (0.342)	1.080a (0.364)
Untied 2008	0.008 (0.012)	0.856c (0.454)	1.547a (0.450)	2.008a (0.554)

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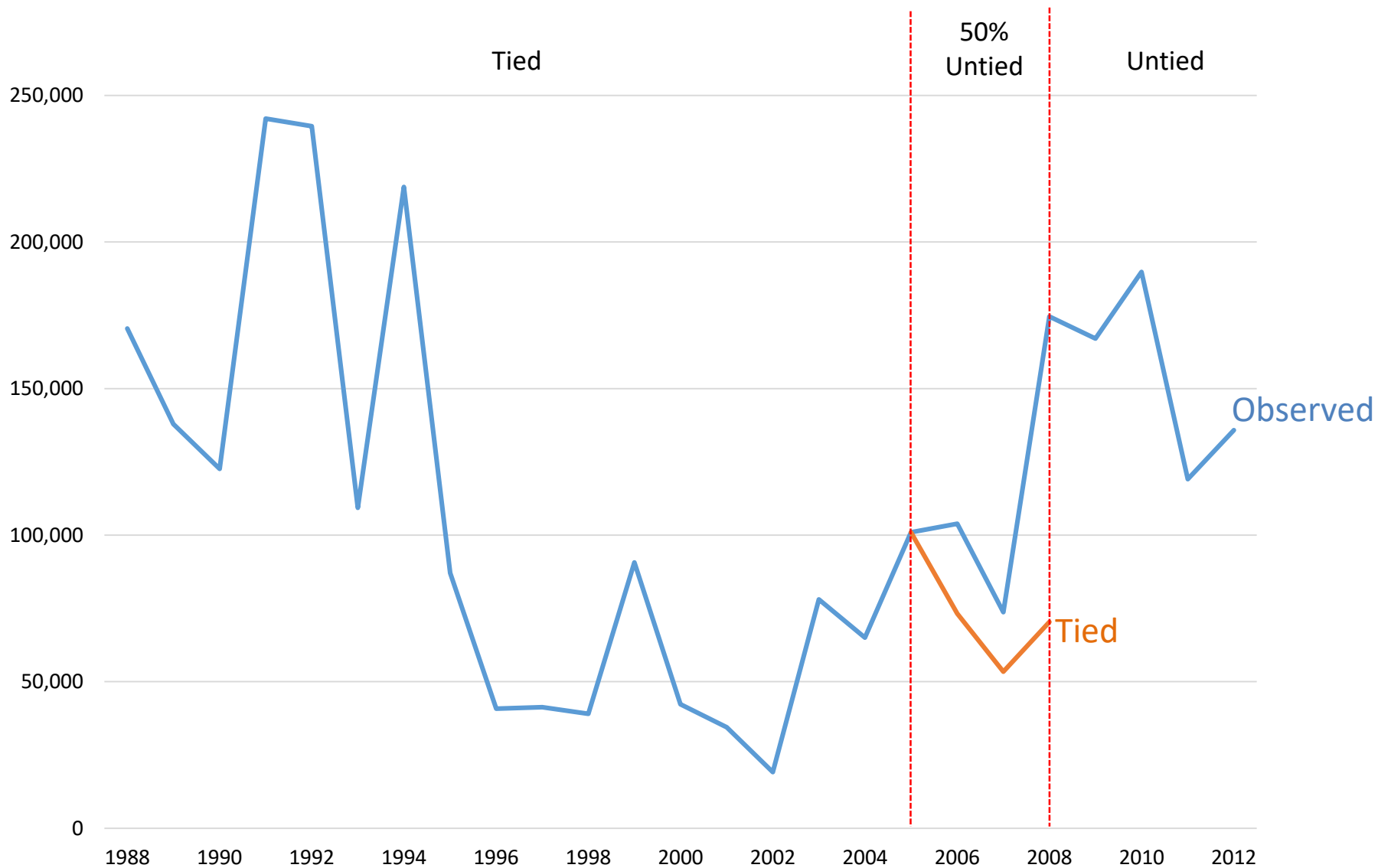


### Canadian emergency food aid shipments (cereals, mt)



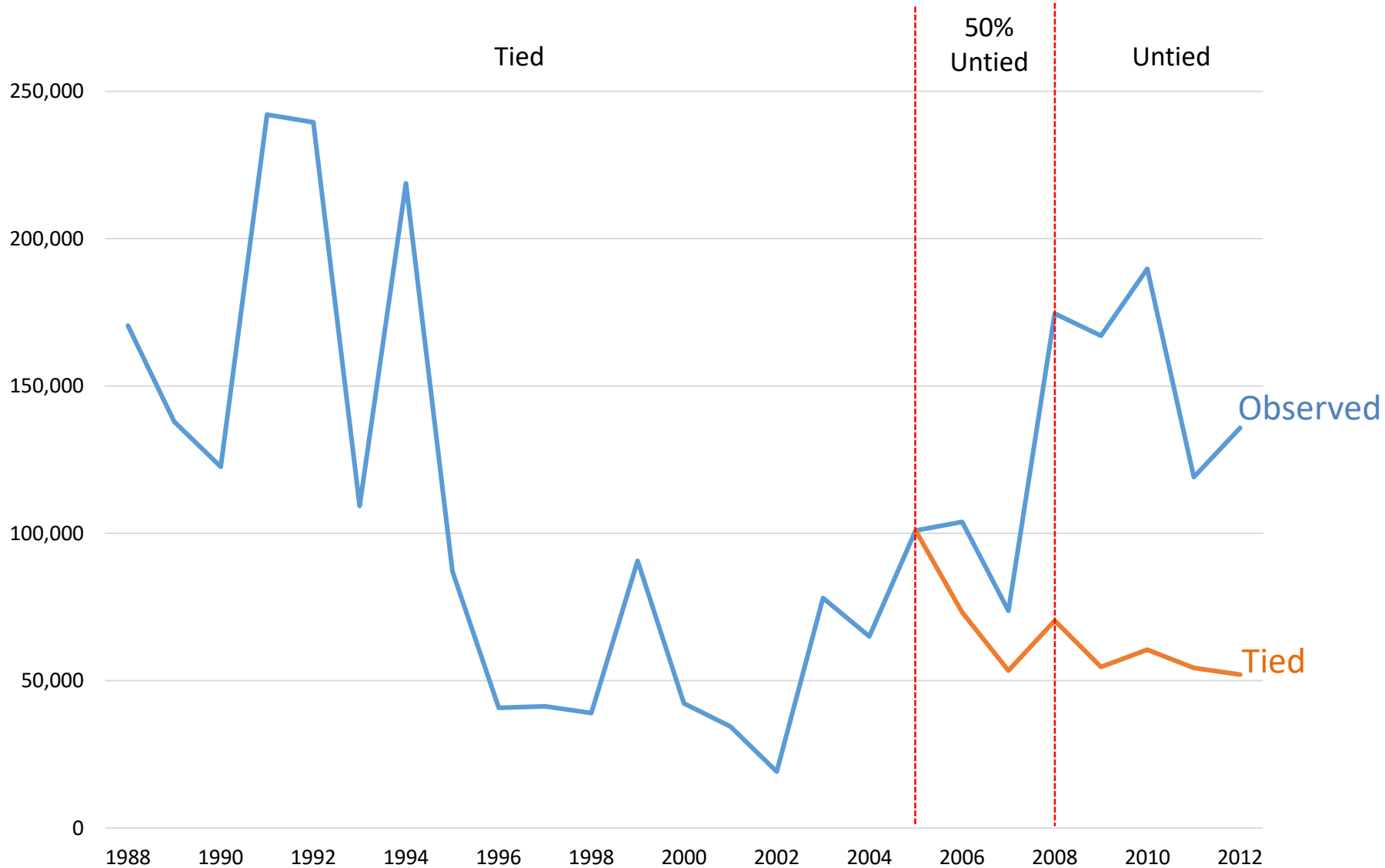


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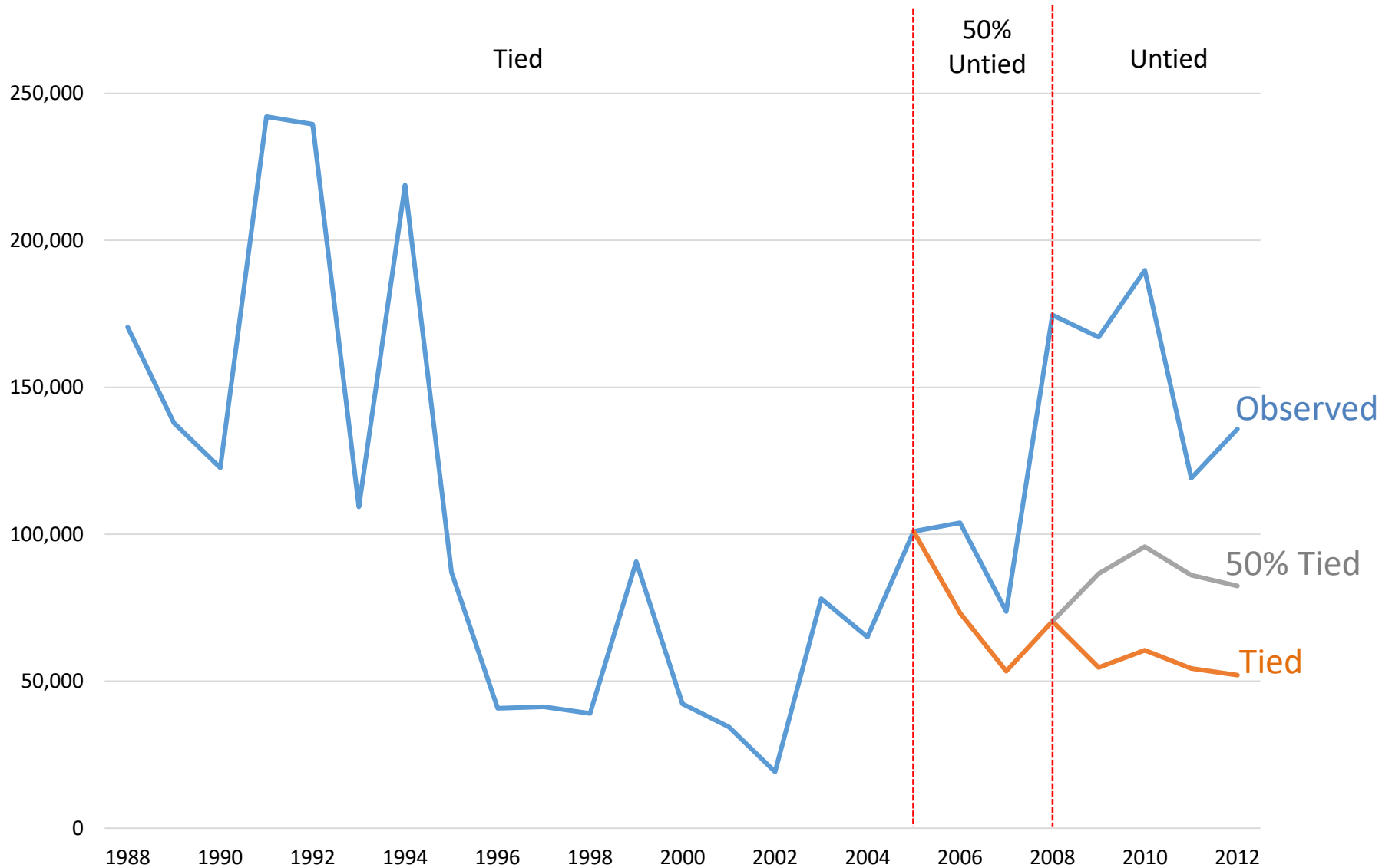
### Canadian emergency food aid shipments (cereals, mt)



# 6. Results



### Canadian emergency food aid shipments (cereals, mt)





### Discussion

- Untying Canadian food assistance increased volumes



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- Untying Canadian food assistance increased volumes
  
- Are results externally valid?
  - US
  - Other forms of ODA
  
- Modelling issues
  - Control for transportation costs
    - Distance measure endogenous?
    - $\uparrow$  in transactions and logistical costs  $>$   $\downarrow$  transportation costs?
  - Recipient production as measure of need

# Untying Aid: The Case of Canadian Food Assistance

International Agricultural Trade Research Consortium  
Annual Meeting  
Washington, DC  
December 5, 2017

