Construct and describe share data

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0.1 Trend of world's shipping tonnage

- Gross Tonnage of Japanese Merchant Vessels from http://www.mlit.go.jp/hakusyo/transport/index1_.htm
- Gross Tonnage of top6 countries from http://www.mlit.go.jp/hakusyo/transport/shouwa41/ind060101/frame.html and Loyd statistics (missing 1961-1963 now)

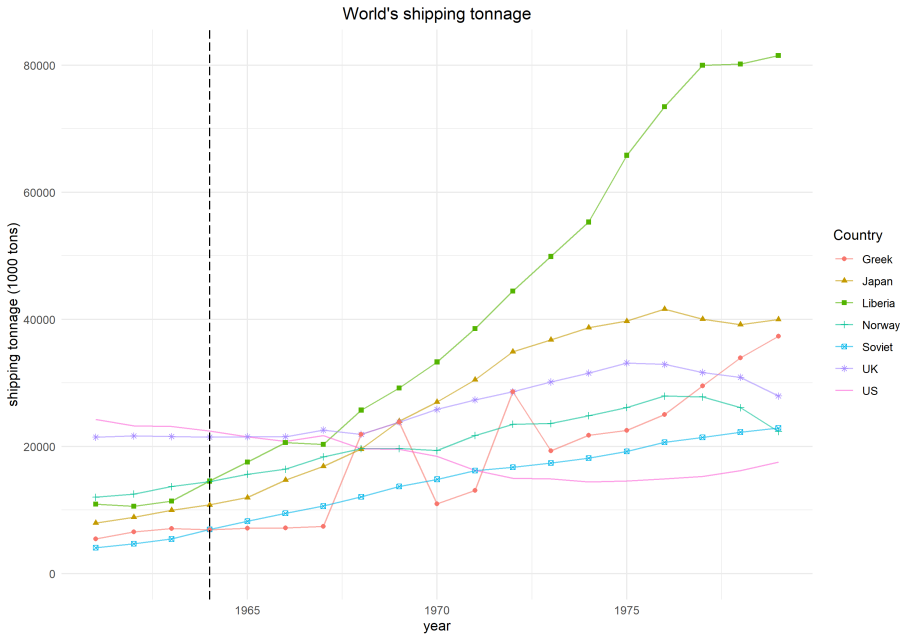

Figure 1: The trend of world's shipping gross tonnage (1000 tons): *Source*: [**?**] which borrows the data of Statistical Tables in Lloyd's Statistics. The data contains ships whose tonnage sizes are at least 100 ton and includes fishing vessel. The dotted vertical line divides the periods before and after mergers of my interest.

0.2 Trend of world's freight movement tonnage

- shipping_quantity_japan is from book3
  - Ministry of Transport Shipping Bureau (missing 1961-1965 now)
  - http://www.mlit.go.jp/hakusyo/transport/index1_.htm

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0.3 Trends of the number of shipping firms in Japan

0.4 planned shipbuilding

The payment of planned shipbuilding is needed for calculation of the estimated amount of financial support.
* https://www.mlit.go.jp/hakusyo/transport/shouwa39/ind060103/001.html#tabII-(I)-12

Note that 38 is the dimension

1 Descriptive data

1.1 descriptive summary

2 type-based histogram

2.1 Groupby histogram

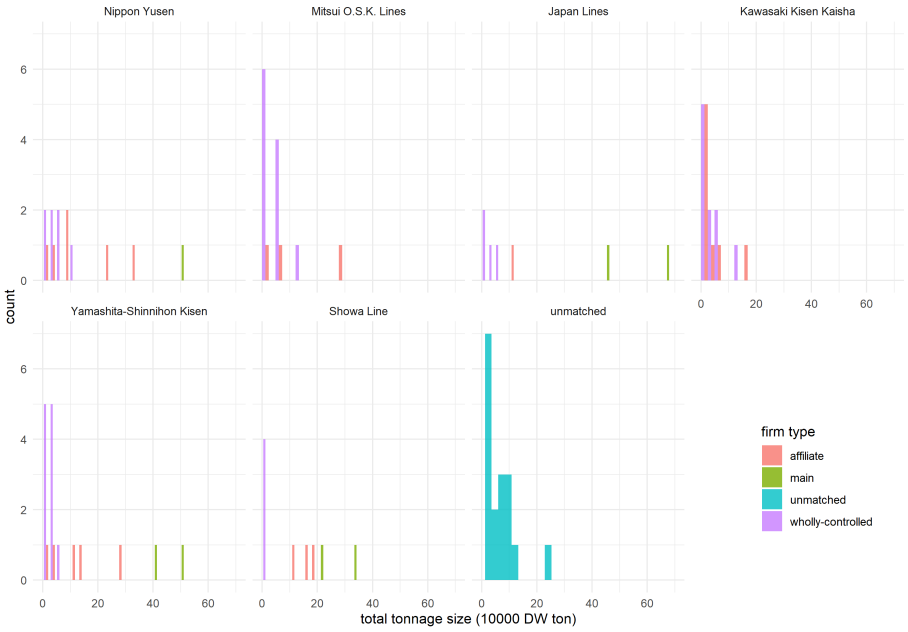

Figure 2: Distribution of tonnage size for each firm type. Observation unit: the firm-level tonnage size for each firm type of each group after mergers.

2.2 pie charts

2.3 Regression

3 Export dataset for maximum rank estimator

4 Sankey diagram based on estimated parameters

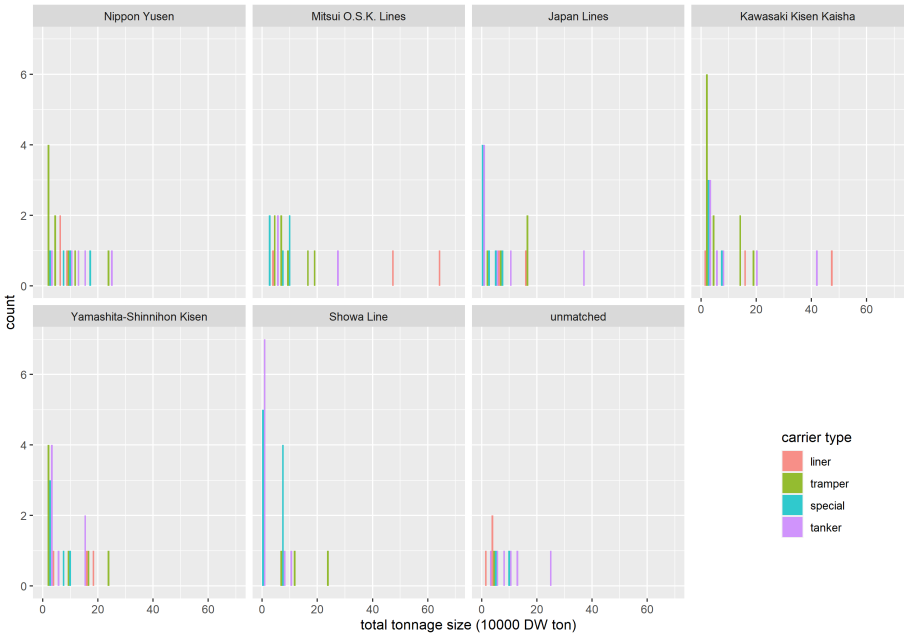

Figure 3: Distribution of tonnage size for each carrier type. Observation unit: firm-level tonnage size for each carrier type of each group after mergers.

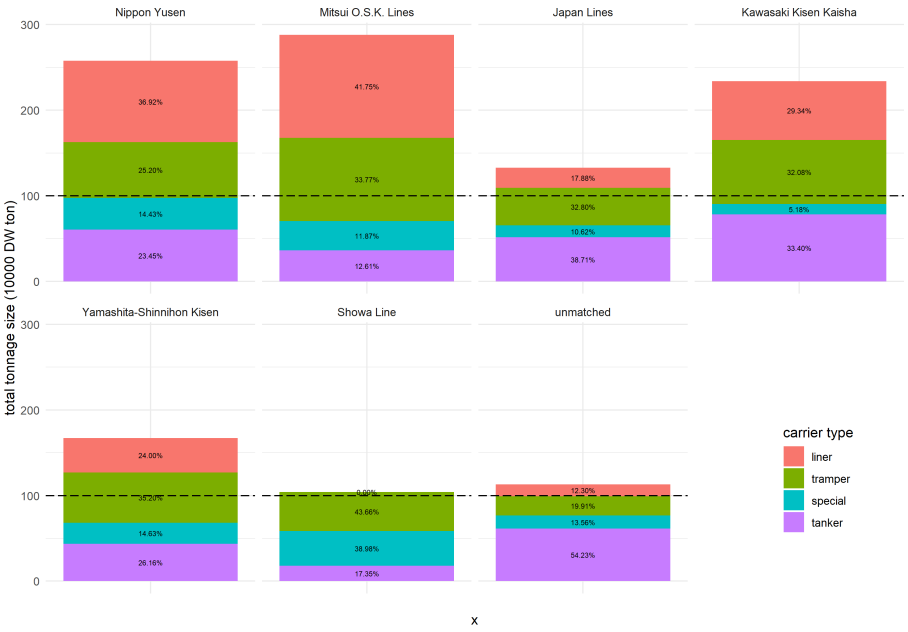

Figure 4: Configuration of tonnage size for each carrier type. Observation unit: group-level total tonnage size for each carrier type after mergers. The dotted horizontal line indicates the subsidy threshold.

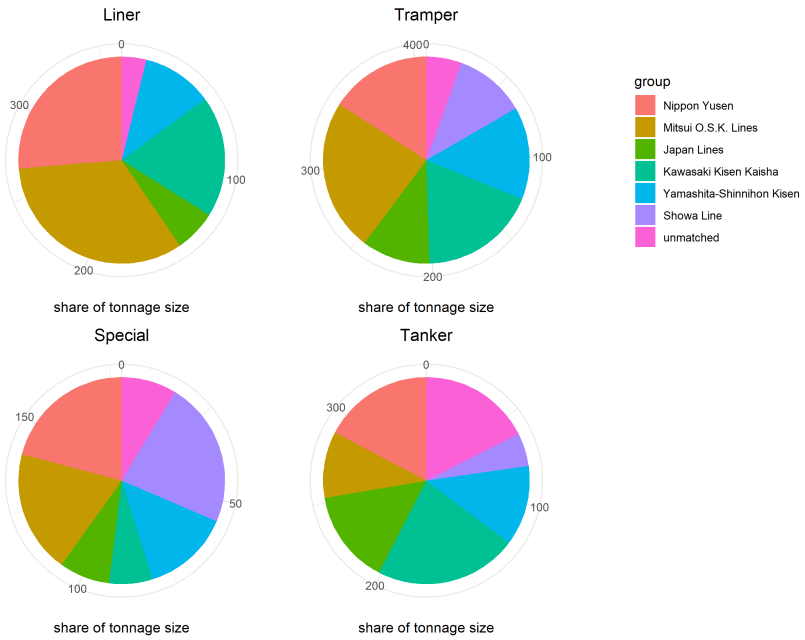

Figure 5: Shares of each carrier type and each group. Observation unit: group-level tonnage size for each carrier type after mergers.

Table 1: Summary statistics for independent variables. *Source* : [**?**] and [**?**].

	N	*mean*	*sd*	*min*	*q25*	*q50*	*q75*	*max*
measure of economies of scale (million D/W)								
total tonnage size	118	0.109	0.207	0.000	0.011	0.026	0.089	1.023
total tonnage size of liner	118	0.031	0.112	0.000	0.000	0.000	0.000	0.721
total tonnage size of special	118	0.014	0.030	0.000	0.000	0.000	0.008	0.161
total tonnage size of tanker	118	0.030	0.071	0.000	0.000	0.000	0.024	0.417
total tonnage size of tramper	118	0.035	0.055	0.000	0.002	0.013	0.034	0.246
measure of economies of scope								
share of liner	118	0.104	0.235	0.000	0.000	0.000	0.000	1.000
share of special	118	0.116	0.242	0.000	0.000	0.000	0.088	1.000
share of tanker	118	0.192	0.351	0.000	0.000	0.000	0.208	1.000
share of tramper	118	0.588	0.417	0.000	0.139	0.705	1.000	1.000
HHI based on carrier types	118	0.814	0.241	0.258	0.584	1.000	1.000	1.000

Table 2: Preliminary regression results for predicting matchings. Observation unit: a one-to-one matching pair. The sample size is determined by all possible matching pairs from 118 firms in my data set.

	Dependent variable:				
	1(match)				
	(1)	(2)	(3)	(4)	(5)
$\log(\text{liner}_b * \text{liner}_t + 1)$	−0.002		−0.013	−0.029***	−0.003***
	(0.006)		(0.009)	(0.010)	(0.001)
$\log(\text{tramper}_b * \text{tramper}_t + 1)$	0.004*		0.005	0.020***	0.002***
	(0.002)		(0.005)	(0.006)	(0.001)
$\log(\text{special}_b * \text{special}_t + 1)$	−0.009**		−0.002	−0.016***	−0.002***
	(0.004)		(0.006)	(0.006)	(0.001)
$\log(\text{tanker}_b * \text{tanker}_t + 1)$	−0.003		−0.017**	−0.026***	−0.003***
	(0.004)		(0.007)	(0.007)	(0.001)
$\log(\text{total}_b * \text{total}_t + 1)$	−0.018		−0.005	0.056***	0.007***
	(0.013)		(0.017)	(0.018)	(0.002)
bank coverage similarity ratio		1.617***	1.995***	0.578	0.081
		(0.525)	(0.574)	(0.616)	(0.076)
$\log(\text{HHI}_b * \text{HHI}_t + 1)$		0.552***	0.464**	0.008	−0.005
		(0.149)	(0.226)	(0.238)	(0.028)
$\log(\text{share of liner}_b * \text{share of liner}_t + 1)$		0.341	1.175	2.171***	0.256***
		(0.472)	(0.739)	(0.788)	(0.096)
$\log(\text{share of special}_b * \text{share of special}_t + 1)$		−0.984*	−0.975	−0.464	−0.035
		(0.524)	(0.672)	(0.699)	(0.073)
$\log(\text{share of tramper}_b * \text{share of tramper}_t + 1)$		0.299***	0.134	−0.615***	−0.064***
		(0.091)	(0.191)	(0.203)	(0.024)
$\log(\text{share of tanker}_b * \text{share of tanker}_t + 1)$		0.251	0.973***	1.287***	0.155***
		(0.210)	(0.335)	(0.353)	(0.043)
same type				1.603***	0.230***
				(0.052)	(0.007)
Intercept	−1.325***	−2.052***	−1.906***	−3.523***	−0.056
	(0.261)	(0.083)	(0.398)	(0.429)	(0.051)
Model	Logit	Logit	Logit	Logit	OLS
Observations	13,806	13,806	13,806	13,806	13,806
Akaike Inf. Crit.	12,057.230	12,036.470	12,034.360	11,050.310	10,227.660
Note:					*p<0.1; **p<0.05; ***p<0.01

Table 3: Summary of total tonnage size for each group. *Source* : [**?**] and [**?**].

	firm type	total tonnage	number of firms	total tonnage in a group
Nippon Yusen				
1	(1) main	1509795	2	2577274
2	(2) affiliate	841568	7	
3	(3) wholly-controlled	225911	7	
Mitsui OSK Line				
4	(1) main	1924859	2	2879216
5	(2) affiliate	400530	5	
6	(3) wholly-controlled	553827	20	
Japan Line				
7	(1) main	1122694	2	1328069
8	(2) affiliate	125738	1	
9	(3) wholly-controlled	79637	4	
Kawasaki Kisen Kaisha				
10	(1) main	1658650	2	2338502
11	(2) affiliate	391170	9	
12	(3) wholly-controlled	288682	7	
Yamashita Shinnihon Kisen				
13	(1) main	899033	2	1671590
14	(2) affiliate	601616	5	
15	(3) wholly-controlled	170941	10	
Showa Line				
16	(1) main	549095	2	1041063
17	(2) affiliate	464830	3	
18	(3) wholly-controlled	27138	4	
Unmatched				
19	unmatched	1131211	24	1131211
Total				
20		12966925	118	12966925