

Supplementary Tables

Table S1. Social-economic data of China's provinces/municipalities.

No	Region	Land (kha)	GDP (billion Yuan)	Export (billion Yuan)	Import (billion Yuan)
1	Beijing	220.86	1787.94	882.75	840.74
2	Tianjin	439.28	1289.39	832.21	594.78
3	Hebei	6561.40	2657.50	1398.78	935.85
4	Shanxi	4068.40	1211.28	719.99	827.73
5	Inner Mongolia	9189.30	1588.06	1087.23	919.89
6	Liaoning	4085.00	2484.64	1006.66	864.01
7	Jilin	7030.00	1193.92	575.09	505.93
8	Heilongjiang	15944.00	1369.16	683.96	746.03
9	Shanghai	189.76	2018.17	1179.84	1310.99
10	Jiangsu	4621.70	5405.82	2822.35	2161.46
11	Zhejiang	1986.70	3466.53	1151.84	1581.35
12	Anhui	5907.10	1721.21	960.35	1098.59
13	Fujian	1341.80	1970.18	653.63	669.57
14	Jiangxi	3089.10	1294.89	488.39	583.60
15	Shandong	7668.29	5001.32	2109.10	1244.03
16	Henan	8192.00	2959.93	1243.01	1511.46
17	Hubei	5323.00	2225.05	484.17	522.31
18	Hunan	4135.00	2215.42	809.81	657.22
19	Guangdong	2616.20	5706.79	1555.01	1638.53
20	Guangxi	4431.00	1303.51	525.10	623.30
21	Hainan	729.76	285.55	241.49	232.71
22	Chongqing	2438.00	1140.96	497.35	675.96
23	Sichuan	6720.00	2387.28	395.36	608.73
24	Guizhou	4562.50	685.22	281.61	423.41
25	Yunnan	6243.90	1030.95	398.86	790.74
26	Tibet	442.97	70.10	1.62	71.05
27	Shaanxi	3988.00	1445.37	768.69	664.28
28	Gansu	5410.20	565.02	296.64	363.53
29	Qinghai	588.53	189.35	46.10	116.72
30	Ningxia	1103.49	234.13	132.98	214.21
31	Xinjiang	4124.60	750.53	343.77	574.99

Table S2. Agricultural land flows embodied in China's multi-regional trade.

No	Region	Inflows		Outflows		Net outflows
		Amount (kha)	Percentage (%)	Amount (kha)	Percentage (%)	
1	Beijing	2193.75	6.53	3.99	0.01	-2189.76
2	Tianjin	1182.35	3.52	119.16	0.35	-1063.19
3	Hebei	403.66	1.20	1229.91	3.66	826.26
4	Shanxi	1269.30	3.78	119.57	0.36	-1149.73
5	Inner Mongolia	375.24	1.12	3001.56	8.94	2626.32
6	Liaoning	1632.02	4.86	545.74	1.63	-1086.28
7	Jilin	21.26	0.06	2280.95	6.79	2259.70
8	Heilongjiang	24.13	0.07	7711.53	22.96	7687.40
9	Shanghai	2423.26	7.22	0.00	0.00	-2423.26
10	Jiangsu	2981.00	8.88	432.89	1.29	-2548.11
11	Zhejiang	3841.22	11.44	69.63	0.21	-3771.59
12	Anhui	376.42	1.12	2235.07	6.6	1858.65
13	Fujian	1223.58	3.64	144.20	0.43	-1079.38
14	Jiangxi	512.68	1.53	654.08	1.9	141.40
15	Shandong	4629.71	13.79	1772.81	5.28	-2856.90
16	Henan	952.26	2.84	2004.58	5.97	1052.32
17	Hubei	402.15	1.20	572.07	1.7	169.92
18	Hunan	264.55	0.79	1139.58	3.3	875.04
19	Guangdong	5366.71	15.98	11.10	0.03	-5355.61
20	Guangxi	319.41	0.95	1290.93	3.84	971.52
21	Hainan	189.58	0.56	344.34	1.03	154.76
22	Chongqing	982.36	2.93	174.96	0.52	-807.40
23	Sichuan	902.43	2.69	425.87	1.27	-476.56
24	Guizhou	111.55	0.33	1188.48	3.54	1076.94
25	Yunnan	562.28	1.67	986.08	2.94	423.80
26	Tibet	54.15	0.16	28.39	0.08	-25.77
27	Shaanxi	109.86	0.33	1374.79	4.09	1264.93
28	Gansu	0.00	0.00	2263.79	6.74	2263.79
29	Qinghai	81.49	0.24	50.54	0.15%	-30.95
30	Ningxia	82.13	0.24	108.43	0.32	26.30
31	Xinjiang	109.43	0.33	1294.89	3.86	1185.46

Table S3. Decomposition factor differences of China's provinces/municipalities.

No	Region	Outflows			Inflows		
		CI_1	SP_1	EX	CI_2	SP_2	IM
1	Beijing	0.12	3.24	882.75	2.38	1.27	840.74
2	Tianjin	0.34	1.60	832.21	2.36	1.08	594.78
3	Hebei	2.47	0.73	1398.78	2.31	0.78	935.85
4	Shanxi	3.36	0.49	719.99	2.29	1.23	827.73
5	Inner Mongolia	5.79	0.84	1087.23	2.22	1.31	919.89
6	Liaoning	1.64	1.27	1006.66	2.34	1.57	864.01
7	Jilin	5.89	0.87	575.09	2.24	0.61	505.93
8	Heilongjiang	11.65	1.19	683.96	2.09	1.13	746.03
9	Shanghai	0.09	3.15	1179.84	2.39	0.88	1310.99
10	Jiangsu	0.85	0.90	2822.35	2.46	0.88	2161.46
11	Zhejiang	0.57	1.35	1151.84	2.42	1.22	1581.35
12	Anhui	3.43	1.17	960.35	2.28	0.80	1098.59
13	Fujian	0.68	1.71	653.63	2.37	1.16	669.57
14	Jiangxi	2.39	1.35	488.39	2.31	1.06	583.60
15	Shandong	1.53	1.30	2109.10	2.39	2.38	1244.03
16	Henan	2.77	1.24	1243.01	2.29	0.93	1511.46
17	Hubei	2.39	1.12	484.17	2.31	0.93	522.31
18	Hunan	1.87	1.35	809.81	2.33	0.76	657.22
19	Guangdong	0.46	1.65	1555.01	2.52	1.58	1638.53
20	Guangxi	3.40	1.33	525.10	2.29	0.98	623.30
21	Hainan	2.56	1.12	241.49	2.31	1.00	232.71
22	Chongqing	2.14	0.83	497.35	2.32	1.08	675.96
23	Sichuan	2.81	1.18	395.36	2.29	1.28	608.73
24	Guizhou	6.66	1.01	281.61	2.26	0.86	423.41
25	Yunnan	6.06	0.96	398.86	2.25	1.07	790.74
26	Tibet	6.32	6.17	1.62	2.31	0.54	71.05
27	Shaanxi	2.76	1.10	768.69	2.30	0.70	664.28
28	Gansu	9.58	1.08	296.64	2.24	0.98	363.53
29	Qinghai	3.11	0.89	46.10	2.31	0.59	116.72
30	Ningxia	4.71	0.54	132.98	2.30	0.64	214.21
31	Xinjiang	5.50	1.15	343.77	2.27	0.75	574.99

Note: CI represents the land use intensity, SP represents the specialization degree, EX represents the domestic outflow, and IM represents the domestic inflow.

Table S4. Embodied agricultural land transfer contribution among China's provinces/municipalities.

No	Region	ETB	Land intensity contribution	Trade balance contribution	Specialization contribution
1	Beijing	-2189.76	-4404.42	103.09	2111.58
2	Tianjin	-1063.19	-1951.45	408.97	479.28
3	Hebei	826.26	143.28	834.39	-151.40
4	Shanxi	-1149.73	715.51	-253.89	-1611.35
5	Inner Mongolia	2626.32	3821.58	695.05	-1890.31
6	Liaoning	-1086.28	-926.44	406.29	-566.13
7	Jilin	2259.70	1463.24	213.17	583.28
8	Heilongjiang	7687.40	7910.54	-496.25	273.11
9	Shanghai	-2423.26	-5722.71	-272.20	3571.65
10	Jiangsu	-2548.11	-3575.08	976.30	50.68
11	Zhejiang	-3771.59	-3237.17	-816.96	282.54
12	Anhui	1858.65	1165.17	-394.18	1087.65
13	Fujian	-1079.38	-1602.23	-33.65	556.51
14	Jiangxi	141.40	47.57	-270.64	364.46
15	Shandong	-2856.90	-2572.53	3190.37	-3474.74
16	Henan	1052.32	714.47	-742.47	1080.32
17	Hubei	169.92	42.08	-91.77	219.60
18	Hunan	875.04	-362.53	333.65	903.92
19	Guangdong	-5355.61	-5316.88	-200.05	161.31
20	Guangxi	971.52	731.87	-325.01	564.66
21	Hainan	154.76	61.32	22.74	70.70
22	Chongqing	-807.40	-101.42	-379.38	-326.59
23	Sichuan	-476.56	324.25	-669.91	-130.90
24	Guizhou	1076.94	1445.31	-600.85	232.47
25	Yunnan	423.80	2316.67	-1639.38	-253.49
26	Tibet	-25.77	358.36	-1135.85	751.72
27	Shaanxi	1264.93	296.97	239.94	728.02
28	Gansu	2263.79	2491.82	-411.41	183.38
29	Qinghai	-30.95	46.35	-142.24	64.94
30	Ningxia	26.30	248.56	-166.80	-55.46
31	Xinjiang	1185.46	1385.45	-879.42	679.42

Note: ETB represents the difference of land use embodied in the interregional trade.