

Intra Industry Trade of Agricultural Sector Commodity Between Indonesia and Malaysia, Philippines and Thailand

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Abstract

The Association of Southeast Asian Nations (ASEAN) consists of ten member countries, which are well known for their agricultural sector. Four of the ten ASEAN member countries, namely Indonesia, Malaysia, the Philippines and Thailand have the potential strategic agricultural sector in sustaining the country's national income. Since 2000, the Indonesian agricultural products to Malaysia, the Philippines and Thailand have undergone a decrease in export value gains from year to year significantly. From the analysis tools used i.e. Grubel-Lloyd Index, Constant Market Share (CMS) and a Data panel; it is found a way to increase the export of agricultural products from Indonesia to Malaysia, the Philippines and Thailand, which is expected to increase the country's national income.

Keywords: intra industry trade, agricultural sector, Indonesia, Malaysia, the Philippines and Thailand.

1. Introduction

Market Globalization is a phenomenon that cannot be avoided by most countries in the world, so that competitiveness is a determining factor whether or not a country can survive in the global competition.

Indonesia, Malaysia, the Philippines and Thailand are the four countries of the ten (10) ASEAN member countries which have the potential in the agricultural sector to improve the countries's national incomes. The four countries were chosen because they have contributed significantly to intra-ASEAN trades compared with the other ASEAN member countries.

Agricultural sector contribution to national income in the countries involved in trades from year to year increases. Indonesian exports to Malaysia and the Philippines dominate compared to its imports while the annual import of Indonesia and Thailand is on average less than the annual average exports.

Table 1 Values of Indonesian Export Import to/from Malaysia, Philippines and Thailand (million U.S. \$)

Year	Malaysia			Philippines			Thailand		
	Export	Import	Total	Export	Import	Total	Export	Import	Total
2000	1,972	1,129	3,101	820	115	935	1,026	1,109	2,135
2001	1,779	1,005	2,784	815	94	909	1,064	986	2,050
2002	2,030	1,037	3,067	778	114	892	1,227	1,191	2,418
2003	2,364	1,138	3,502	945	183	1,128	1,393	1,702	3,095
2004	3,016	1,682	4,698	1,238	229	1,467	1,976	2,772	4,748
2005	3,431	2,149	5,580	1,419	322	1,741	2,246	3,447	5,693
2006	4,111	3,193	7,304	1,406	285	1,691	2,702	2,983	5,685
2007	5,096	6,412	11,508	1,854	360	2,214	3,054	4,287	7,341
2008	6,433	8,922	15,355	2,054	756	2,810	3,661	6,334	9,995
2009	6,812	5,688	12,500	2,406	544	2,950	3,234	4,613	7,847
2010	8,648	9,362	18,011	706	3,180	3,886	7,470	4,566	12,036
2011	10,404	10,995	21,401	852	3,699	4,551	10,405	5,896	16,301
2012	12,243	11,280	23,523	799	3,707	4,506	11,437	6,635	18,072
TOTAL	68,339	63,992	132,331	16,092	13,588	29,680	50,895	46,521	97,416

Source: Central Statistics Agency, Indonesia's Foreign Trade Statistics, various annual editions

The research problem in this paper is as follows: 1) to describe the intensity of *intra-industry trade* (IIT) of agricultural commodities between Indonesia and Malaysia, the Philippines and Thailand; 2) to analyze the dynamics of agricultural commodity trades between Indonesia and Malaysia, the Philippines and Thailand; 3) to identify the effect of economic scales, economic structures, product differentiations, labor intensity, foreign direct investments, and gross domestic product on the IIT of agricultural commodities between Indonesia and Malaysia, Philippines, and Thailand.

FRAMEWORK OF THOUGHTS

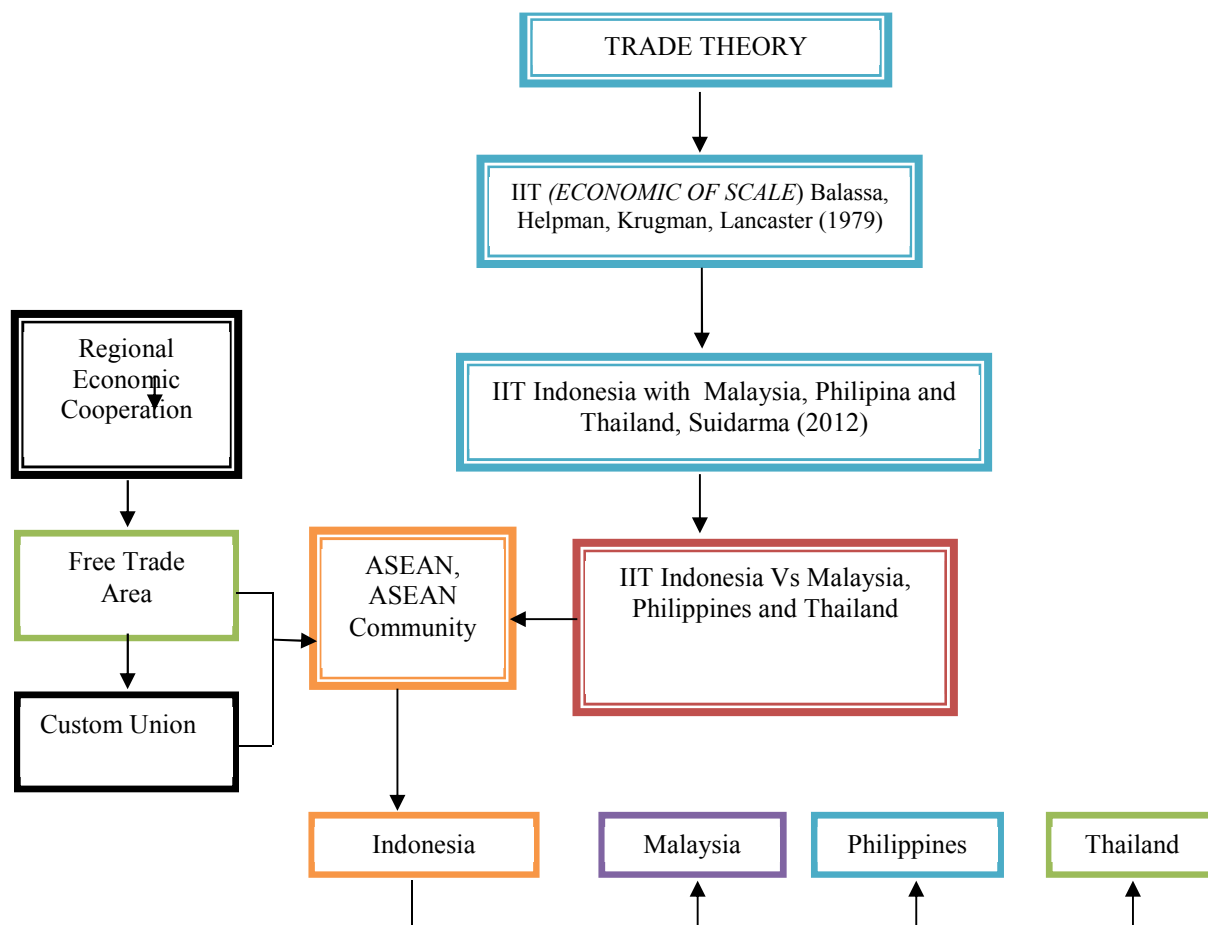


Figure 2 Framework of Thoughts

2. Research Methods

This study uses secondary data export import from the Central Statistics Agency (CSA) Jakarta from 2000 to 2012 under the code of the Standard International Trade Classification (SITC) while the other supporting data used to describe the condition of Indonesia's trade with Malaysia, the Philippines, and Thailand were obtained from the ASEAN Secretariat. Agricultural products belonging to SITC which were of 27 kinds of commodities were then multiplied by the data during the 13 study periods and multiplied by 3 countries of export destinations, resulting in 1,053 units of analysis .

The analytical tools used to solve the problem are:

1) Intensity Size of IIT

$$IIT_j^i = 1 - \frac{|X_j^i - M_j^i|}{(X_j^i + M_j^i)} \dots\dots\dots (1)$$

notation:

IIT_j^i : IIT index of agricultural sector commodity of country i to country j

X_j^i : agricultural sector commodity export of country i to country j

M_j^i : agricultural sector commodity import of country i to country j
 (Grubel-Lloyd 1975)

2) Dynamic Size of Agricultural Sector Trade

a. Import Growth Effect

$$m X_{i,jk1}$$

m = percentage increase in imports of Malaysia, the Philippines and Thailand from Indonesia

$X_{i,jk1}$ = Exports of agricultural products from Indonesia to Malaysia, Philippines and Thailand in year (t-1)

b. Commodity Composition Effect

$$\{(m_i - m) X_{i,jk1}\} \dots \dots \dots (3)$$

notation:

m = percentage increase in imports of Malaysia, the Philippines and Thailand from Indonesia

m_i = Percentage increase in imports of agricultural products in Indonesia

$X_{i,jk1}$ = Exports of agricultural products from Indonesia to Malaysia, Philippines and Thailand in year (t-1)

c. Competitiveness Effects:

$$(X_{i,jk2} - X_{i,jk1} - m_i X_{i,jk1}) \dots \dots \dots (4)$$

notation:

m_i = Percentage increase in imports of the agricultural sector in Indonesia

$X_{i,jk1}$ = Exports of agricultural products from Indonesia to Malaysia, Philippines and Thailand year (t-1)

$X_{i,jk2}$ = Exports of agricultural products from Indonesia to Malaysia, Philippines and Thailand year (t)

From the equations above, the following equation yields:

$$X_{i,jk2} - X_{i,jk1} = m X_{i,jk1} + \{(m_i - m) X_{i,jk1}\} + \{X_{i,jk2} - X_{i,jk1} - m_i X_{i,jk1}\} \dots \dots \dots (5)$$

notation:

(a) = import growth effect

(b) = composition effect

(c) = competitiveness effect

(Aswicahyono and Pangestu, 2000)

3) Method of Analysis of Factors Affecting IIT

Analysis tools for panel data regression model:

$$IITp_{j,t} = \alpha_0 + \alpha_1 ES_{j,t} + \alpha_2 MS_{j,t} + \alpha_3 PD_{j,t} + \alpha_4 LI_{j,t} + \alpha_5 FI_{j,t} + \alpha_6 GDP_{j,t} + e_{j,t} \dots \dots \dots (6)$$

notation:

$IITp_{j,t}$: IIT total Index of agricultural sector commodity j from Indonesia to Malaysia, Philippines, and Thailand in year t

Economic of Scale ($ES_{j,t}$) : Ratio between added values of the four biggest companies in agricultural sector j divided by the amount of labors of the four biggest companies in terms of added values, and the remainder is divided by the number of employees of the remaining companies in the industry in year t.

Market Structure ($MS_{j,t}$) : Size of competition or market structure in agriculture commodity j in year t

Labor Intensity ($LI_{j,t}$) : Intensity of labor in agricultural sector j in year t

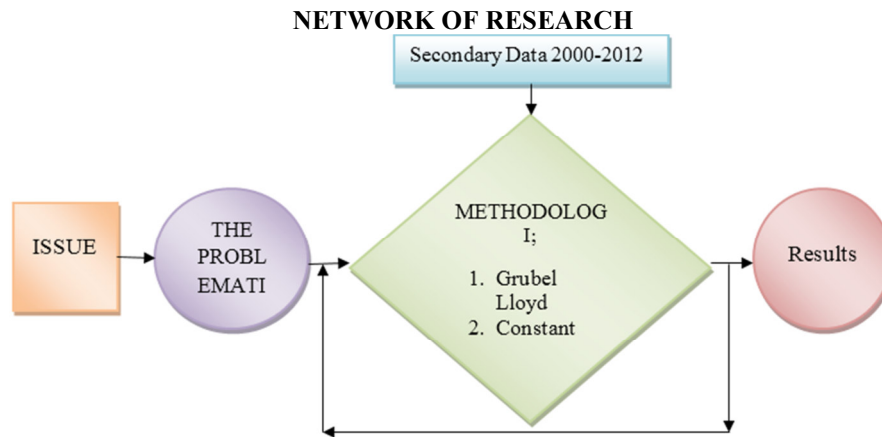
Product Differentiation ($PD_{j,t}$) : Differentiation of products in agricultural sector j in year t

Foreign Investment ($FI_{j,t}$) : Foreign investment in agricultural sector j in year t

Gross Domestic Product ($GDP_{j,t}$) : Indonesian national revenue in year t

Error ($e_{j,t}$) : error terms

(Gujarati, 2003)



3. RESEARCH RESULTS

1) IIT intensity of agricultural products between Indonesia and Malaysia, the Philippines and Thailand

According to Grubel-Lloyd Index, agricultural products between Indonesia and Malaysia which are IIT-categorized are 90 commodities or 25.64 percent; the remaining 261 commodities or 74.35 percent are inter-industry trades. Agricultural products between Indonesia and the Philippines which are IIT-categorized are 89 or 25.35 percent. The remaining 262 commodities or 74.64 percent are of inter-industry trade. Agricultural products between Thailand and Indonesia are 112 IIT-categorized commodities or 31.90 percent and the remaining 239 or 68.09 percent of commodity trade is inter-industry.

Table 2 Grubel -Lloyd Index of Agricultural Products between Indonesia and Malaysia

No	SITC	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
1	001	90.106	58.680	75.487	84.153	31.630	87.983	36.473	31.863	68.910	0.022	9.672	0.495	0.546
2	022	4.720	1.560	5.868	0.793	60.860	4.292	80.355	46.847	13.599	31.651	32.816	99.389	27.840
3	025	0.407	6.700	9.203	86.410	95.245	78.903	90.559	2.034	38.397	4.968	91.676	11.859	4.927
4	034	31.490	14.797	4.316	0.565	0.062	5.669	66.505	86.900	33.152	75.770	1.830	5.125	37.902
5	036	0.173	0.613	0.850	4.078	5.307	51.509	1.882	3.264	34.767	0.237	0.099	10.338	28.918
6	041	0.780	1.285	2.509	0.418	5.394	84.985	48.840	92.177	0.187	38.801	2.723	65.096	6.793
7	042	4.343	1.324	20.984	5.736	34.006	87.634	1.761	74.638	1.584	2.515	0.007	10.253	1.868
8	044	82.208	0.003	8.171	4.477	1.527	80.782	0.046	93.755	2.603	85.362	0.117	16.095	5.261
9	054	2.350	0.182	50.525	0.735	45.710	0.609	23.265	34.596	33.589	58.261	0.193	24.965	1.416
10	056	67.336	48.110	19.876	72.116	28.815	0.810	0.231	7.151	8.703	0.764	8.197	14.323	24.087
11	057	45.137	5.021	36.240	1.438	77.018	0.982	62.765	40.315	43.739	15.706	0.132	30.020	17.457
12	061	96.423	3.123	22.508	6.501	12.262	46.782	50.491	0.177	3.012	54.051	71.509	1.621	12.051
13	071	13.925	0.488	96.937	41.333	5.456	52.892	23.273	54.516	5.302	62.665	81.304	9.653	77.387
14	074	2.004	1.500	2.146	63.981	8.627	3.938	26.660	87.602	0.201	0.171	0.004	35.625	10.891
15	075	28.289	2.647	8.066	76.107	0.399	8.034	7.564	37.803	0.007	1.977	1.788	0.456	15.039
16	121	89.552	12.681	76.251	88.445	68.926	0.747	1.539	92.954	60.479	25.551	9.211	0.346	65.967
17	223	26.474	7.341	1.026	9.376	0.218	14.869	98.611	62.119	37.681	0.105	86.181	13.689	1.541
18	231	21.308	1.671	20.052	2.537	80.890	53.145	5.988	97.926	96.360	0.391	1.025	0.275	10.040
19	244	21.069	18.921	20.101	2.410	9.778	89.109	35.013	0.614	34.602	18.081	33.379	96.183	0.036
20	245	31.140	2.800	18.938	34.223	6.185	81.595	7.174	69.525	4.426	0.683	24.283	55.375	2.877
21	246	46.648	24.834	36.638	87.142	58.911	2.355	16.073	87.402	5.555	0.193	11.405	21.908	16.947
22	247	72.593	28.515	22.464	41.670	77.001	81.786	84.130	0.049	11.435	0.240	67.153	22.518	60.486
23	261	93.004	96.390	8.961	19.758	80.685	14.360	84.049	0.020	30.621	20.395	4.548	11.216	0.733
24	263	92.334	39.491	58.828	99.538	18.575	95.202	57.744	57.195	14.772	4.134	85.197	3.703	91.855
25	264	16.271	39.864	11.407	69.974	5.962	0.112	16.527	3.964	6.989	36.101	5.302	1.388	25.204
26	265	0.514	40.313	36.461	88.935	27.024	49.532	56.887	33.265	39.952	20.925	15.682	13.051	40.066
27	292	44.767	23.249	18.686	7.109	27.867	61.872	11.641	43.489	18.917	18.453	55.938	70.300	78.176

Table 3 Grubel -Lloyd Index of Agricultural Products between Indonesia and the Philippines

No	SITC	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
1	001	57.697	0.077	21.346	63.928	6.607	48.187	47.970	56.979	20.379	1.987	55.018	0.243	23.588
2	022	63.713	93.165	0.000	61.852	85.335	0.411	0.078	0.011	0.000	0.075	11.476	30.667	1.124
3	025	27.708	0.566	3.136	1.916	0.938	0.163	23.901	44.406	3.088	62.966	3.233	7.277	71.067
4	034	54.235	3.631	4.552	67.154	87.844	19.584	0.002	12.068	0.022	58.992	55.165	27.175	0.063
5	036	16.788	3.371	71.725	13.074	4.543	7.345	5.390	3.143	5.406	14.656	89.659	2.414	10.373
6	041	69.715	72.108	13.593	23.136	4.868	14.295	6.521	0.797	2.568	71.818	11.540	1.310	27.578
7	042	0.168	35.687	19.975	0.746	39.072	7.045	19.312	7.253	32.887	1.368	87.665	0.056	16.009
8	044	1.394	51.894	45.614	39.994	3.088	84.683	0.216	6.018	1.527	12.681	29.874	41.525	28.012
9	054	0.337	6.331	39.310	1.263	21.057	66.063	20.894	4.556	91.993	48.719	99.828	2.262	1.825
10	056	6.557	15.696	6.667	0.003	33.259	2.198	4.947	14.663	86.449	28.197	1.356	4.564	3.873
11	057	38.551	25.974	71.431	5.383	8.783	30.239	0.014	76.390	49.910	8.513	98.815	0.921	1.574
12	061	77.081	0.080	20.409	0.819	35.601	7.007	18.038	10.179	1.006	0.223	2.289	39.545	10.348
13	071	23.876	1.496	64.055	0.097	62.253	0.410	44.032	98.029	6.472	0.018	0.215	14.179	81.864
14	074	36.647	79.331	3.425	45.968	96.369	1.323	69.438	1.588	0.706	50.169	53.148	99.356	0.804
15	075	9.454	0.496	49.584	0.118	0.145	51.884	40.206	47.842	0.059	1.100	3.706	8.883	40.366
16	121	0.015	0.065	47.975	21.947	7.227	40.425	31.388	59.580	75.598	36.082	21.750	90.711	0.235
17	223	97.781	18.499	69.892	1.029	77.790	22.671	21.423	0.404	0.002	29.631	12.483	23.984	2.952
18	231	7.830	35.091	86.655	2.112	0.032	78.022	2.703	1.563	9.570	26.575	12.927	14.319	17.072
19	244	60.211	0.312	37.886	4.296	14.665	1.735	7.025	5.551	1.134	19.365	0.020	17.038	28.175
20	245	72.195	0.053	3.572	22.633	67.482	8.419	0.926	0.135	32.425	4.990	80.808	76.483	0.097
21	246	0.041	0.217	65.371	45.183	93.764	22.432	4.290	9.420	51.430	37.311	0.526	4.558	46.451
22	247	0.283	0.030	1.829	0.101	0.539	22.940	0.236	8.779	37.882	16.428	76.110	46.582	0.703
23	261	7.169	4.845	2.941	11.275	10.833	2.848	41.666	8.889	49.551	17.872	20.042	3.718	80.377
24	263	38.846	43.746	20.022	0.288	10.314	11.923	8.523	58.693	0.001	84.060	70.556	8.212	13.831
25	264	10.658	43.164	23.228	15.110	1.147	0.233	26.489	38.237	89.045	14.812	5.402	0.504	2.848
26	265	26.515	35.179	2.144	92.936	19.937	7.040	0.418	33.207	57.727	3.558	2.007	13.258	38.142
27	292	73.598	13.112	39.346	33.759	26.749	14.605	27.496	24.779	18.224	16.223	17.843	17.986	29.074

Table 4 Grubel -Lloyd Index of Agricultural Products between Indonesia and Thailand

No	SITC	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
1	001	41.022	21.112	0.002	11.371	99.868	2.760	63.689	71.743	85.557	6.335	0.851	33.753	67.245
2	022	74.877	0.010	0.057	2.631	0.213	9.316	0.115	0.389	0.003	37.878	0.025	62.500	14.838
3	025	60.625	72.798	37.773	0.044	2.302	10.992	0.498	69.982	0.052	3.087	3.687	7.175	24.226
4	034	94.306	0.060	0.033	22.954	0.000	7.118	67.419	3.181	51.021	31.978	2.700	20.933	8.321
5	036	2.162	0.867	10.971	56.448	5.209	38.211	0.012	0.205	0.136	0.215	0.365	55.445	0.002
6	041	4.574	3.146	0.109	0.212	0.880	12.470	1.463	25.182	40.069	0.729	0.009	2.241	0.039
7	042	2.094	14.541	0.839	0.095	2.636	0.109	4.661	87.925	0.093	41.558	1.743	1.302	0.244
8	044	2.914	0.007	0.495	10.838	3.702	30.999	65.709	58.631	0.154	0.032	2.015	70.970	11.192
9	054	2.682	41.921	0.199	0.760	0.005	0.218	24.365	13.075	1.381	2.384	18.581	53.749	47.477
10	056	23.741	57.091	27.607	11.701	7.426	0.002	58.318	2.017	4.218	91.991	56.153	81.562	77.642
11	057	5.530	2.934	86.385	27.183	53.214	18.719	41.048	75.203	2.036	80.150	23.896	88.672	0.154
12	061	1.687	0.010	8.738	0.023	22.046	87.662	22.180	46.068	92.602	26.060	24.667	2.275	0.608
13	071	0.000	0.294	61.372	58.421	72.281	2.104	33.850	1.210	40.595	10.006	1.415	0.094	1.318
14	074	12.113	28.913	18.961	91.709	1.642	12.244	73.104	1.137	57.372	93.358	1.676	71.905	0.005
15	075	1.670	7.771	13.727	6.585	1.284	0.004	12.013	61.320	4.347	6.407	0.453	2.065	22.447
16	121	32.286	42.163	22.623	1.354	2.594	76.290	30.869	15.348	64.514	17.406	86.506	1.247	21.884
17	223	78.953	1.807	13.282	57.332	2.070	21.351	54.862	68.551	4.445	57.040	0.068	6.079	0.145
18	231	43.189	4.181	0.672	0.695	7.349	14.977	53.685	12.016	0.597	41.514	9.535	0.761	0.567
19	244	7.668	88.483	67.264	0.006	3.476	0.192	87.939	66.424	0.834	21.422	21.187	2.923	42.528
20	245	82.481	2.011	35.640	4.911	61.793	0.096	90.822	7.843	87.177	40.485	15.357	61.346	30.524
21	246	0.314	52.327	61.956	0.061	0.220	2.007	32.148	92.869	3.622	12.712	20.126	0.259	40.573
22	247	6.447	41.562	1.021	66.603	22.585	39.851	0.771	0.250	63.395	69.010	30.211	0.738	62.639
23	261	3.782	0.103	0.569	56.384	6.165	0.255	5.212	82.323	70.215	92.599	2.789	5.416	39.704
24	263	0.238	90.801	0.020	14.710	0.038	69.648	50.666	57.237	7.755	0.323	39.829	2.650	0.007
25	264	74.766	21.222	39.873	88.322	2.983	3.281	30.545	2.350	46.455	49.414	11.465	83.066	22.383
26	265	5.144	0.050	83.916	73.847	8.028	0.698	2.234	61.140	41.497	0.685	0.026	0.231	28.715
27	292	32.422	61.772	45.767	50.592	43.047	3.009	76.622	80.615	85.261	84.015	73.720	46.687	29.086

2) Agricultural Product Export Performance between Indonesia and Malaysia, the Philippines and Thailand.

Export performance of agricultural products from Indonesia to Malaysia, Philippines and Thailand are very volatile. The factors that cause fluctuation in Indonesia's exports to Malaysia, the Philippines and Thailand affect commodity composition negatively. The effect of the growth of imports from Malaysia, Philippines and Thailand is always positive annually while the influence of the competitiveness of Indonesian agricultural products fluctuates; sometimes it has negative impact and sometimes positive impact.

Table 5 Dynamics of Agricultural Products Trade between Indonesia and Malaysia

Year	Indonesia-Malaysia			CMS
	Import Growth Effects	Commodity Composition Effects	Competitiveness Effects	
2000	154927815	-48321363	-106615434	-14968673
2001	47380371	-50976520	3561814	6621895
2002	138722963	-111220787	-27458198	5236587
2003	123368398	-79443724	-43977466	4211
2004	232603270	-137911090	-94740553	-8750240
2005	100632564	-81964176	-18602483	-42780118
2006	178489894	-170530200	-7946264	111007471
2007	107126796	-43839792	-63319553	-109781286
2008	30134455	-14531284	-15602566	-29398385
2009	74147515	-78178910	3985211	32285416
2010	24471377	-66213150	41724866	-23314226
2011	256586641	-111971403	-144597144	133836577
2012	228526013	-295899570	67546726	-35429731

Table 6 Dynamics of Agricultural Products Trade between Indonesia and Philippines

Year	Indonesia-Philippina			CMS
	Import Growth Effects	Commodity Composition Effects	Competitiveness Effects	
2000	32939108	-37479595	4540144	-277564355
2001	21211005	-11582149	-9628802	12532046
2002	12252896	-9601090	-2651846	-62683769
2003	9035327	-184532259	175501365	51373365
2004	9774500	-7999011	-1775482	-43911612
2005	18693289	-62042104	43348450	23227328
2006	125068544	-150611877	25541328	246719353
2007	56377900	-235236362	178862925	-188850384
2008	152420460	-87411110	-65009655	70934347
2009	15360238	-43312493	27952355	-91562793
2010	275171044	-11725347	-263445847	-29837880
2011	372119512	-69555122	-302564402	349172547
2012	123858628	-2047525805	1923635866	-188423343

Table 7 Dynamics of Agricultural Products Trade between Indonesia and Thailand

Year	Indonesia-Thailand			CMS
	Import Growth Effects	Commodity Composition Effects	Competitiveness Effects	
2000	27452700	-74873876	47460228	-14845246
2001	100047320	-92947144	-7135983	60420657
2002	408129156	-955356785	547750143	225053073
2003	37920490	-83514701	45631529	-290819315
2004	73640580	-461543947	388148173	50110237
2005	1317983163	-1431752582	114586331	387577528
2006	3393753478	-882083056	-2511987146	-317802897
2007	551491418	-538529717	-13092577	-95153292
2008	568493489	-32699490	-535813162	10517057
2009	1843556927	-1768980660	-74700372	37531259
2010	1067826383	-407999400	-659530859	-288151034
2011	243668404	-366342614	122853369	-104155797
2012	75037173	-186743017	111747057	-17623306

3) Results of Panel Data Analysis of Inter Industry Trade (IIT) of Agricultural Products from Indonesia to Malaysia, Philippines and Thailand

Table 8 Panel Data Estimation Results of IIT Agriculture Products from Indonesia to Malaysia, Philippines and Thailand

Dependent Variable	Independent Variable	Regression Co-efficient	Standard Error	t-Statistics	Prob
IIT Agricultural Products	GDP	6.50E-07	3.4E-07	1.895159	0.0677
	LI	-6.670156	1.647819	-1.013555	0.3189
	FI	0.142324	0.042131	3.378122	0.0020
	PD	0.007165	0.003755	1.908238	0.0660
	MS	0.000543	0.000171	3.180053	0.0034
	ES	0.044262	0.014342	-3086161	0.0043
Fixed Effects (Cross)	_IM--C	0.092424			
	_IP--C	-0.069240			
	_IT--C	-0.023184			
Constant = 4.337562		F-count = 3.673209			
R-Squared = 0.494828					

Source : processed raw data

- Regression coefficient of the analysis results using the Estimated Generalize Least Square (EGLS) method shows that :
 - 1) The GDP coefficient of 0.000000650 percent has a significantly positive effect at the level of $\alpha = 10$ percent or more precisely amounted to 6.77 percent of the IIT of agricultural products from Indonesia to Malaysia, Philippines and Thailand.
 - 2) The LI coefficient of -1.670156 has a significantly negative effect at the level of $\alpha = 31.89$ per cent on the IIT of agricultural products from Indonesia to Malaysia, Philippines and Thailand.
 - 3) The FI coefficient of 0.142324 has a significantly positive effect at the level of $\alpha = 1$ 0.20 percent or precisely 0.20 percent on the IIT of agricultural products from Indonesia to Malaysia, Philippines and Thailand.
 - 4) The PD coefficient of 0.007165 percent has a significantly positive effect at the level of $\alpha = 10$ percent or 6.60 percent to be exact on the IIT of agricultural products from Indonesia to Malaysia, Philippines and Thailand.
 - 5) The MS coefficient of 0.000543 percent has a significantly positive effect at the level of $\alpha = 1$ per cent or 0.34 percent to be exact on the IIT of agricultural products from Indonesia to Malaysia, Philippines and Thailand.
 - 6) The ES coefficient of -0.044262 percent has a significantly negative effect at the level of $\alpha = 1$ percent or precisely 0.43 percent on the IIT of agricultural products from Indonesia to Malaysia, Philippines and Thailand.
- From the results obtained by the analysis of constant value to each country's trade objectives:
 - 1) The analysis results of panel data models of IIT of the agricultural products between Indonesia and Malaysia, the constant coefficient of 4.429986 (4.337562 + 0.092424) was obtained.
 - 2) The results of the analysis of panel data modeling of IIT of agricultural products between Indonesia and the Philippines gained constant coefficient of 4.268322 (4.337562 to 0.069240).
 - 3) The results of the analysis of panel data modeling of IIT of agricultural products between Indonesia and Thailand, the constant coefficient of 4.314378 (4.337562 + 0.023184) was obtained.
 - 4) This figure has the same interpretation, i.e. when the independent variables are considered constant then the IIT will be positive, meaning that there are other independent variables that affect the IIT of agricultural products but the variables are not included within the model.
- 4) Statistic Test Results
 - T test and F test

T-count of each independent variable: 1.895159 for GDP, for LI -1.013555, 3.378122 for the FI, for PD 1.908238, 3.180053 for MS and -3.086161 for ES. While the T-Table = 1.645

 - 1) GDP (t count > t-table), H_0 is rejected, meaning that the GDP effect the IIT of agricultural commodity between Indonesia and Malaysia, the Philippines and Thailand.
 - 2) LI (t count < t - table), H_0 is not rejected, meaning that LI has no effect on the IIT of agricultural commodities between Indonesia and Malaysia, the Philippines and Thailand.
 - 3) logFI (t count > t - table), H_0 is rejected, meaning that the growth of FI influences the IIT of agricultural commodities between Indonesia and Malaysia, the Philippines and Thailand.
 - 4) PD (t count > t - table), H_0 is rejected, meaning that the PD effect the IIT of agricultural commodity between Indonesia and Malaysia, the Philippines and Thailand.
 - 5) MS (t count > t - table), H_0 is rejected, meaning that the MS effects the IIT of agricultural commodity

between Indonesia and Malaysia, the Philippines and Thailand.

- 6) ES ($t\text{-count} < t\text{-table}$), H_0 is not rejected, meaning that the ES effects the IIT of agricultural commodity between Indonesia and Malaysia, the Philippines and Thailand.

While the F-table value = 2.42, the F-count is 3.673209. Thus $F\text{ count} > F\text{-table}$, H_0 is rejected, meaning that the independent variables (GDP, LI, FI, PD, MS, ES) simultaneously affect the dependent variables (IIT of agricultural commodities between Indonesia and Malaysia, the Philippines and Thailand).

4. CONCLUSION

From the results of this study, it can be concluded that:

- 1) Overall, IIT agricultural products between Indonesia and Malaysia, the Philippines, and Thailand have not been categorized as intra-industry, but still categorized as inter - industry given its Grubel Lloyd index, which is still below 40 percent.
- 2) Dynamics of trade or export performance of agricultural products from Indonesia to Malaysia, the Philippines, and Thailand as a whole (per year) is fluctuated and is positively influenced by the growth of imports of the targeted country; they are adversely affected by the composition of a commodity demanded by the country of destination. They are also positively and negatively affected by the competitiveness of Indonesian agricultural products compared with the average export and import of the four countries, Indonesia itself, Malaysia, Philippines and Thailand.
- 3) Factors that influence the IIT agricultural products between Indonesia and Malaysia, the Philippines and Thailand turned out to be ± 50 percent influenced by factors that exist in the model and ± 50 percent are influenced by factors built outside the model.

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Figure 1 Map of ASEAN