

Notes on
The Chinn-Ito Financial Openness Index
2021 Update

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The Chinn-Ito index (*KAOPEN*) is an index measuring a country's degree of capital account openness. The index was initially introduced in Chinn and Ito (*Journal of Development Economics*, 2006). *KAOPEN* is based on the binary dummy variables that codify the tabulation of restrictions on cross-border financial transactions reported in the IMF's *Annual Report on Exchange Arrangements and Exchange Restrictions (AREAER)*. This update is based on *AREAER 2021*, which contains the information on regulatory restrictions on cross-border financial transactions as of the end of 2021.¹

More information on how the index is constructed and how it compares with other measures of cross-border financial flows can be found in:

[“A New Measure of Financial Openness”](#), *Journal of Comparative Policy Analysis*, Volume 10, Issue 3 September 2008, p. 309 - 322. Note that this paper uses the 2007 version of the dataset (containing data up to only 2005), which will differ from the current version of the dataset.

When you use the index, please acknowledge the following paper as the data source:

Chinn, Menzie D. and Hiro Ito. 2006. [“What Matters for Financial Development? Capital Controls, Institutions, and Interactions.”](#) *Journal of Development Economics*, Volume 81, Issue 1, Pages 163-192 (October).

The dataset is available at http://web.pdx.edu/~ito/Chinn-Ito_website.htm .

kaopen_2021.xls (Excel format) or *kaopen_2021.dta* (STATA 17 dataset format) is a data file that contains the updated version of the Chinn and Ito index series. The dataset encompasses the time period of **1970-2021** for **182 countries**. In the dataset, *cn* refers to IMF-World Bank three-

¹ Not all the countries report their regulatory controls as of the end of the year of concern. For each country, the report stipulates the date as of which the data are based.

digit code; *ccode* to “ISO Alpha-3 Code”; *kaopen* to the Chinn-Ito index; and *ka_open* to the Chinn-Ito index normalized to range between zero and one. A complete list of the countries and their data availability are presented in the *Country List* shown below.

Regarding KAOPEN

As is explained with details in Chinn and Ito (2006, 2008), *KAOPEN* is the first principal component of the original variables pertaining to regulatory controls over current or capital account transactions, the existence of multiple exchange rates, and the requirements of surrendering export proceeds. For more details, refer to Chinn and Ito (2006, 2008).

Principal component analysis (PCA) is a statistical tool that extracts principal components (PCs), which are orthogonal linear combinations of a set of variables based on their ability to capture the variations of these variables. The first PC covers the greatest variance of the original variables: (i.e., *k1*, *k2*, *Share_k3*, and *k4*). In the process of constructing PCs, the original variables are standardized, which makes the mean of the PC zero, i.e., make the PC range between negative and positive territories. See Anderson (2003) and other standard statistics textbooks for additional discussions of PCA.

By the nature of the principal component, every time the data are updated to include the most recent year’s data, the index is recalculated using the *entire* sample of the original variables, including corrected/fixed data. Because of this procedure, the data for the older years are recalculated, and the *KAOPEN* index becomes incompatible across different versions. Hence, the summary statistics change across different versions of the index.

What’s new?

- *KAOPEN* is updated for 2021 using the data from *AREAER 2022*.
- It appears that the international sanctions against terrorist states have made some countries, especially industrialized countries, start reporting implementations of capital controls from 2005 on. Hence, in the *AREAER*, the following countries appear as though they “imposed” capital controls since 2005. However, given the nature of the “capital controls” and also given the lack of perception or evidence that these countries did actually implement capital controls in economically meaningful ways, we decided to consider that these countries did not impose capital controls from 2005 on. Specifically, the original *k3* is given the value of zero for the following countries, except for France and Japan which appear to have imposed “international sanctions” through *k2* restrictions from 2006 on.

The countries of our concern here are:²

² The figure in parentheses denotes the IMF-World Bank three-digit code. The same is true for the remainder of the

United States (111), Austria (122), Belgium (124), France (132), Germany (134), Sweden (144), Switzerland (146), Japan (158), Finland (172), Greece (174), Portugal (182), Spain (184), Czech Rep. (935), and Hungary (944).

- The variables of *KAOPEN*, *k1*, *k2*, *k3*, and *k4* are replaced with missing variables for the following countries and years because of the lack of functioning governments and financial markets.

Afghanistan in 2001 to present
Iraq in 2003 to present
Somalia in 2008 to present

Summary Statistics of *KAOPEN*

The summary statistics of *KAOPEN* for different income groups are shown in Table 1.

Figure 1 compares the subsample averages of *KAOPEN* for different income groups of countries.³ Figure 2 does the same thing, but in terms of ratios with the maximal value normalized as 1.00 (i.e., *ka_open*) for different income groups and decades. Figure 3 compares the ratios of *KAOPEN* for developing countries across different geographical regions.

Table 2 ranks countries based on the level of *KAOPEN* as of 2021. The furthest right column indicates whether a country of concern increased (“Up”) or decreased (“Down”) the level of *KAOPEN* compared to that as of 2020. There are 51 countries that score the “most financially open” value of 2.30 as of 2021 whereas there are 10 countries with the “least financial open” score of -1.93.

Table 3 reports that 6 countries increased the level of *KAOPEN* in 2021 while 9 countries decreased the level of *KAOPEN* the same year.

Figure 4 compares the averages of annual changes in *KAOPEN* (i.e., the first-differenced change in the normalized *KAOPEN*) for different time periods and different income groups. Figure 5 does the same thing for different geographical groups of developing countries.

paper.

³ The industrialized countries (IDC) refer to traditional OECD countries, leaving the other countries as the developing countries (LDC). The emerging market countries (EMGs), a subgroup of LDC, are defined as the countries classified as either emerging or frontier during the period of 1980-1997 by the International Financial Corporation plus Hong Kong and Singapore. In the country list shown in Appendix I, IDCs and EMGs are denoted by “i” and “e”, respectively.

Notes

The dataset is available at http://web.pdx.edu/~ito/Chinn-Ito_website.htm .

The document [“A New Measure of Financial Openness”](#) details the construction of the index and other relevant information. Please consult with that document before sending inquiries to ito@pdx.edu.

The IMF’s *Annual Report on Exchange Arrangements and Exchange Restrictions (AREAER)* of 2010 has a survey of the literature on various measures of capital account restrictiveness in Appendix to Introduction (p. 48–53).

Next Update: The index might be updated in the summer or fall of 2024, following the publication of the IMF’s *AREAER 2023* (probably in the spring of 2024) which will contain information on capital controls policies as of 2022. The release of the update may change due to a variety of reasons. Please check http://web.pdx.edu/~ito/Chinn-Ito_website.htm before sending us inquiries.

Disclaimer: When you use the index, please acknowledge our *JDE* paper (see below) as the data source. We are not responsible for the results of the estimations that use the index. Although the index is based on the information released by the International Monetary Fund, the index is not associated with the Fund. All the errors of the index are the authors’ own. All rights reserved.

References

- Anderson, T. W. 2003. *An Introduction to Multivariate Statistical Analysis*, 3rd Edition, Wiley Series in Probability and Statistics, New York: Wiley.
- Chinn, Menzie D. and Hiro Ito (2008). [“A New Measure of Financial Openness”](#). *Journal of Comparative Policy Analysis*, Volume 10, Issue 3, p. 309 – 322 (September).
- Chinn, Menzie D. and Hiro Ito (2006). [“What Matters for Financial Development? Capital Controls, Institutions, and Interactions.”](#) *Journal of Development Economics*, Volume 81, Issue 1, Pages 163-192 (October). The longer version is available as NBER Working Paper No. 11370 (May 2005).
- International Monetary Fund (2010, various years). *Annual Report on Exchange Arrangements and Exchange Restrictions (AREAER)*, Washington, D.C.: International Monetary Fund.

Appendix I: Country List

	cn	ccode	Country Name	Availability		cn	ccode	Country Name	Availability
					30	622	CMR	Cameroon	1970 - 2021
					31	156	CAN	Canada (i)	1970 - 2021
					32	624	CPV	Cape Verde	1982 - 2021
					33	626	CAF	Central African Republic	1970 - 2021
					34	628	TCD	Chad	1970 - 2021
					35	228	CHL	Chile (e)	1970 - 2021
					36	924	CHN	China (e)	1984 - 2021
					37	233	COL	Colombia (e)	1970 - 2021
					38	632	COM	Comoros	1981 - 2021
					39	636	ZAR	Congo, Dem. Rep.	1970 - 2021
					40	634	COG	Congo, Rep.	1970 - 2021
					41	238	CRI	Costa Rica	1970 - 2021
					42	960	HRV	Croatia	1996 - 2021
					43	423	CYP	Cyprus	1970 - 2021
					44	935	CZE	Czech Republic (e)	1996 - 2021
					45	128	DNK	Denmark (i)	1970 - 2021
					46	611	DJI	Djibouti	1982 - 2021
					47	321	DMA	Dominica	1982 - 2021
					48	243	DOM	Dominican Republic	1970 - 2021
					49	248	ECU	Ecuador (e)	1970 - 2021
					50	469	EGY	Egypt, Arab Rep. (e)	1970 - 2021
					51	253	SLV	El Salvador	1970 - 2021
					52	642	GNQ	Equatorial Guinea	1973 - 2021
					53	643	ERI	Eritrea	1998 - 2021
					54	939	EST	Estonia	1996 - 2021
					55	734	SWZ	Eswatini	1973 - 2021
					56	644	ETH	Ethiopia	1970 - 2021
					57	819	FJI	Fiji	1975 - 2021
					58	172	FIN	Finland (i)	1970 - 2021
					59	132	FRA	France (i)	1970 - 2021
					60	646	GAB	Gabon	1970 - 2021
1	512	AFG	Afghanistan	1970 - 2000					
2	914	ALB	Albania	1995 - 2021					
3	612	DZA	Algeria	1970 - 2021					
4	614	AGO	Angola	1993 - 2021					
5	311	ATG	Antigua and Barbuda	1985 - 2009					
6	213	ARG	Argentina (e)	1970 - 2021					
7	911	ARM	Armenia	1996 - 2021					
8	314	ABW	Aruba	1992 - 2021					
9	193	AUS	Australia (i)	1970 - 2021					
10	122	AUT	Austria (i)	1970 - 2021					
11	912	AZE	Azerbaijan	1996 - 2021					
12	313	BHS	Bahamas, The	1977 - 2021					
13	419	BHR	Bahrain	1976 - 2021					
14	513	BGD	Bangladesh (e)	1976 - 2021					
15	316	BRB	Barbados	1974 - 2021					
16	913	BLR	Belarus	1996 - 2021					
17	124	BEL	Belgium (i)	1970 - 2021					
18	339	BLZ	Belize	1985 - 2021					
19	638	BEN	Benin	1979 - 2021					
20	514	BTN	Bhutan	1985 - 2021					
21	218	BOL	Bolivia	1970 - 2021					
22	963	BIH	Bosnia and Herzegovina	1999 - 2021					
23	616	BWA	Botswana (e)	1972 - 2021					
24	223	BRA	Brazil (e)	1970 - 2021					
25	918	BGR	Bulgaria (e)	1994 - 2021					
26	748	BFA	Burkina Faso	1988 - 2021					
27	618	BDI	Burundi	1970 - 2021					
28	662	CIV	Côte d'Ivoire (e)	1970 - 2021					
29	522	KHM	Cambodia	1973 - 2021					

	cn	ccode	Country Name	Availability			cn	ccode	Country Name	Availability			
61	648	GMB	Gambia, The	1971	-	2021	92	544	LAO	Lao PDR	1970	-	2021
62	915	GEO	Georgia	1996	-	2021	93	941	LVA	Latvia	1996	-	2021
63	134	DEU	Germany (i)	1970	-	2021	94	446	LBN	Lebanon	1970	-	2021
64	652	GHA	Ghana (e)	1970	-	2021	95	666	LSO	Lesotho	1972	-	2021
65	174	GRC	Greece (i)	1970	-	2021	96	668	LBR	Liberia	1970	-	2021
66	328	GRD	Grenada	1979	-	2021	97	672	LBY	Libya	1970	-	2021
67	258	GTM	Guatemala	1970	-	2021	98	946	LTU	Lithuania (e)	1996	-	2021
68	656	GIN	Guinea	1970	-	2021	99	674	MDG	Madagascar	1970	-	2021
69	654	GNB	Guinea-Bissau	1981	-	2021	100	676	MWI	Malawi	1970	-	2021
70	336	GUY	Guyana	1970	-	2021	101	548	MYS	Malaysia (e)	1970	-	2021
71	263	HTI	Haiti	1970	-	2021	102	556	MDV	Maldives	1982	-	2021
72	268	HND	Honduras	1970	-	2021	103	678	MLI	Mali	1970	-	2021
73	532	HKG	Hong Kong, China (e)	1970	-	2021	104	181	MLT	Malta (i)	1972	-	2021
74	944	HUN	Hungary (e)	1986	-	2021	105	867	MHL	Marshall Islands	1996	-	2021
75	176	ISL	Iceland (i)	1970	-	2021	106	682	MRT	Mauritania	1970	-	2021
76	534	IND	India (e)	1970	-	2021	107	684	MUS	Mauritius (e)	1972	-	2021
77	536	IDN	Indonesia (e)	1970	-	2021	108	273	MEX	Mexico (e)	1970	-	2021
78	429	IRN	Iran, Islamic Rep.	1970	-	2021	109	868	FSM	Micronesia, Fed. Sts.	1996	-	2021
79	433	IRQ	Iraq	1970	-	2002	110	921	MDA	Moldova	1996	-	2021
80	178	IRL	Ireland (i)	1970	-	2021	111	948	MNG	Mongolia	1995	-	2021
81	436	ISR	Israel (e)	1970	-	2021	112	686	MAR	Morocco (e)	1970	-	2021
82	136	ITA	Italy (i)	1970	-	2021	113	688	MOZ	Mozambique	1988	-	2021
83	343	JAM	Jamaica (e)	1970	-	2021	114	518	MMR	Myanmar	1970	-	2021
84	158	JPN	Japan (i)	1970	-	2021	115	728	NAM	Namibia	1994	-	2021
85	439	JOR	Jordan (e)	1970	-	2021	116	558	NPL	Nepal	1970	-	2021
86	916	KAZ	Kazakhstan	1996	-	2021	117	138	NLD	Netherlands (i)	1970	-	2021
87	664	KEN	Kenya (e)	1970	-	2021	118	353	ANT	Netherlands Antilles	1970	-	2009
88	826	KIR	Kiribati	1990	-	2005	119	196	NZL	New Zealand (i)	1970	-	2021
89	542	KOR	Korea, Rep. (e)	1970	-	2021	120	278	NIC	Nicaragua	1970	-	2021
90	443	KWT	Kuwait	1970	-	2021	121	692	NER	Niger	1970	-	2021
91	917	KGZ	Kyrgyz Republic	1997	-	2021	122	694	NGA	Nigeria (e)	1970	-	2021

	cn	ccode	Country Name	Availability
123	962	MKD	North Macedonia, FYR	1997 - 2021
124	142	NOR	Norway (i)	1970 - 2021
125	449	OMN	Oman	1977 - 2021
126	564	PAK	Pakistan (e)	1970 - 2021
127	283	PAN	Panama	1970 - 2021
128	853	PNG	Papua New Guinea	1979 - 2021
129	288	PRY	Paraguay	1970 - 2021
130	293	PER	Peru (e)	1970 - 2021
131	566	PHL	Philippines (e)	1970 - 2021
132	964	POL	Poland (e)	1986 - 2021
133	182	PRT	Portugal (i)	1970 - 2021
134	453	QAT	Qatar	1976 - 2021
135	968	ROM	Romania	1976 - 2021
136	922	RUS	Russian Federation (e)	1996 - 2021
137	714	RWA	Rwanda	1970 - 2021
138	716	STP	Sao Tome and Principe	1981 - 2021
139	862	WSM	Samoa	1975 - 2021
140	135	SMR	San Marino	1996 - 2021
141	456	SAU	Saudi Arabia	1970 - 2021
142	722	SEN	Senegal	1970 - 2021
143	718	SYC	Seychelles	1981 - 2021
144	724	SLE	Sierra Leone	1970 - 2021
145	576	SGP	Singapore (e)	1970 - 2021
146	936	SVK	Slovak Republic (e)	1996 - 2021
147	961	SVN	Slovenia (e)	1996 - 2021
148	813	SLB	Solomon Islands	1982 - 2021
149	726	SOM	Somalia	1970 - 2007
150	199	ZAF	South Africa (e)	1970 - 2021
151	184	ESP	Spain (i)	1970 - 2021
152	524	LKA	Sri Lanka (e)	1970 - 2021
153	361	KNA	St. Kitts and Nevis	1988 - 2021

	cn	ccode	Country Name	Availability
154	362	LCA	St. Lucia	1983 - 2021
155	364	VCT	St. Vincent and the Grenad.	1983 - 2021
156	732	SDN	Sudan	1970 - 2021
157	366	SUR	Suriname	1970 - 2021
158	144	SWE	Sweden (i)	1970 - 2021
159	146	CHE	Switzerland (i)	1996 - 2021
160	463	SYR	Syrian Arab Republic	1970 - 2021
161	923	TJK	Tajikistan	1997 - 2021
162	738	TZA	Tanzania	1970 - 2021
163	578	THA	Thailand (e)	1970 - 2021
164	742	TGO	Togo	1970 - 2021
165	866	TON	Tonga	1989 - 2021
166	369	TTO	Trinidad and Tobago (e)	1970 - 2021
167	744	TUN	Tunisia (e)	1970 - 2021
168	186	TUR	Turkey (e)	1970 - 2021
169	925	TKM	Turkmenistan	1996 - 2021
170	746	UGA	Uganda	1970 - 2021
171	926	UKR	Ukraine	1996 - 2021
172	466	ARE	United Arab Emirates	1976 - 2021
173	112	GBR	United Kingdom (i)	1970 - 2021
174	111	USA	United States (i)	1970 - 2021
175	298	URY	Uruguay	1970 - 2021
176	927	UZB	Uzbekistan	1996 - 2021
177	846	VUT	Vanuatu	1985 - 2000
178	299	VEN	Venezuela, RB (e)	1970 - 2021
179	582	VNM	Vietnam	1970 - 2021
180	474	YEM	Yemen, Rep.	1995 - 2021
181	754	ZMB	Zambia	1970 - 2021
182	698	ZWE	Zimbabwe (e)	1984 - 2021

Notes: “cn” refers to IMF-World Bank three-digit code. “ccode” to “ISO Alpha-3 Code”. “(i)” and “(e)” refer to IDCs and EMGs, respectively.

Table 1: Summary Statistics (as of 2021)

	Minimum	Mean	Median	Maximum	Standard Deviation
Full Sample	-1.93	0.00	-0.17	2.30	1.53
Industrialized Countries	-1.93	1.36	2.30	2.30	1.30
Developing Countries	-1.93	-0.23	-1.24	2.30	1.44
Emerging Markets	-1.93	-0.16	-0.17	2.30	1.44

Table 2: Country Ranking as of 2021

Ranking	Country Name	KAOPEN	Change in KAOPEN					
1	Australia	2.30			67	Chile	1.03	
1	Austria	2.30			67	Croatia	1.03	
1	Bahrain	2.30			67	Djibouti	1.03	
1	Belgium	2.30			67	Ecuador	1.03	
1	Botswana	2.30			67	El Salvador	1.03	
1	Cambodia	2.30			67	Kenya	1.03	
1	Canada	2.30			67	Kuwait	1.03	
1	Cape Verde	2.30	Up		67	Marshall Islands	1.03	
1	Costa Rica	2.30			67	Mauritius	1.03	
1	Cyprus	2.30			67	Mexico	1.03	
1	Czech Republic	2.30			67	Poland	1.03	
1	Denmark	2.30			67	San Marino	1.03	
1	Estonia	2.30			67	Saudi Arabia	1.03	
1	Finland	2.30			67	Slovenia	1.03	
1	France	2.30			81	Slovak Republic	0.72	Down
1	Gambia, The	2.30			82	Sao Tome and Principe	0.53	
1	Georgia	2.30			83	Bulgaria	0.46	Down
1	Germany	2.30			84	Sudan	0.41	
1	Greece	2.30			85	Kyrgyz Republic	0.34	
1	Guatemala	2.30			86	Azerbaijan	0.02	
1	Hong Kong, China	2.30			87	Bolivia	-0.04	
1	Hungary	2.30			87	Lebanon	-0.04	
1	Ireland	2.30			87	Paraguay	-0.04	
1	Israel	2.30			87	Philippines	-0.04	
1	Italy	2.30			87	St. Lucia	-0.04	
1	Japan	2.30			92	Albania	-0.17	Up
1	Jordan	2.30			92	Belarus	-0.17	Up
1	Korea, Rep.	2.30			92	Colombia	-0.17	
1	Latvia	2.30			92	Dominica	-0.17	
1	Lithuania	2.30			92	Egypt, Arab Rep.	-0.17	
1	Malta	2.30			92	Indonesia	-0.17	
1	Micronesia, Fed. Sts.	2.30			92	Kiribati	-0.17	Down
1	Netherlands	2.30			92	Malaysia	-0.17	
1	New Zealand	2.30			92	Thailand	-0.17	
1	Nicaragua	2.30			92	Vietnam	-0.17	
1	Norway	2.30			92	Zimbabwe	-0.17	
1	Panama	2.30			103	Nigeria	-0.67	
1	Peru	2.30			103	Papua New Guinea	-0.67	
1	Portugal	2.30			105	Argentina	-0.74	
1	Qatar	2.30			106	Tajikistan	-0.92	Up
1	Seychelles	2.30			107	Kazakhstan	-0.99	
1	Singapore	2.30			108	Algeria	-1.24	
1	Spain	2.30			108	Aruba	-1.24	
1	Sweden	2.30			108	Bangladesh	-1.24	
1	Switzerland	2.30			108	Barbados	-1.24	
1	United Arab Emirates	2.30			108	Belize	-1.24	
1	United Kingdom	2.30			108	Benin	-1.24	
1	United States	2.30			108	Bhutan	-1.24	
1	Uruguay	2.30			108	Bosnia and Herzegovina	-1.24	
1	Yemen, Rep.	2.30			108	Brazil	-1.24	
1	Zambia	2.30			108	Burkina Faso	-1.24	
52	Oman	2.05	Down		108	Côte d'Ivoire	-1.24	
53	Iceland	1.79	Up		108	Cameroon	-1.24	
53	Romania	1.79	Down		108	Central African Republic	-1.24	
53	Vanuatu	1.79	Up		108	Chad	-1.24	
56	Armenia	1.61			108	China	-1.24	
56	Maldives	1.61			108	Comoros	-1.24	
56	Mongolia	1.61			108	Congo, Rep.	-1.24	
59	Dominican Republic	1.54			108	Equatorial Guinea	-1.24	
60	Trinidad and Tobago	1.36	Down		108	Ethiopia	-1.24	
61	Antigua and Barbuda	1.22			108	Fiji	-1.24	
61	Rwanda	1.22			108	Gabon	-1.24	
61	Uganda	1.22	Down		108	Grenada	-1.24	
64	Guyana	1.10			108	Honduras	-1.24	
64	Haiti	1.10	Down		108	India	-1.24	
64	Liberia	1.10			108	Jamaica	-1.24	
					108	Lao PDR	-1.24	
					108	Lesotho	-1.24	
					108	Libya	-1.24	
					108	Madagascar	-1.24	

108	Malawi	-1.24	
108	Mali	-1.24	
108	Mauritania	-1.24	
108	Moldova	-1.24	
108	Morocco	-1.24	
108	Mozambique	-1.24	
108	Myanmar	-1.24	
108	Namibia	-1.24	
108	Nepal	-1.24	
108	Niger	-1.24	
108	Pakistan	-1.24	
108	Russian Federation	-1.24	Down
108	Samoa	-1.24	
108	Senegal	-1.24	
108	Sierra Leone	-1.24	
108	Solomon Islands	-1.24	
108	South Africa	-1.24	
108	Sri Lanka	-1.24	
108	St. Kitts and Nevis	-1.24	
108	St. Vincent and the Grenad.	-1.24	
108	Suriname	-1.24	
108	Swaziland	-1.24	
108	Tanzania	-1.24	
108	Togo	-1.24	
108	Tonga	-1.24	
108	Tunisia	-1.24	
108	Turkiye	-1.24	
108	Turkmenistan	-1.24	
108	Uzbekistan	-1.24	
166	Angola	-1.93	
166	Bahamas, The	-1.93	
166	Burundi	-1.93	
166	Eritrea	-1.93	
166	Ghana	-1.93	
166	Guinea	-1.93	
166	Iran, Islamic Rep.	-1.93	
166	Syrian Arab Republic	-1.93	
166	Ukraine	-1.93	
166	Venezuela, RB	-1.93	

Table 3: Countries that increased *KAOPEN* in 2021

	Ranking	Country Name	<i>KAOPEN</i> (as of 2021)	Change in <i>KAOPEN</i>
1	92	Albania	-0.17	1.08
1	92	Belarus	-0.17	1.08
3	53	Iceland	1.79	0.25
3	53	Vanuatu	1.79	0.25
5	106	Tajikistan	-0.92	0.25
6	1	Cape Verde	2.30	0.25

Table 4: Countries that decreased *KAOPEN* in 2021

	Ranking	Country Name	<i>KAOPEN</i> (as of 2021)	Change in <i>KAOPEN</i>
1	64	Haiti	1.10	-1.20
1	92	Kiribati	-0.17	-1.20
3	108	Russian Federation	-1.24	-1.08
3	61	Uganda	1.22	-1.08
5	53	Romania	1.79	-0.25
5	83	Bulgaria	0.46	-0.25
5	81	Slovak Republic	0.72	-0.25
5	52	Oman	2.05	-0.25
5	60	Trinidad and Tobago	1.36	-0.25

Figure 1: Development of *KAOPEN* for Different Income Groups, 1970 – 2021

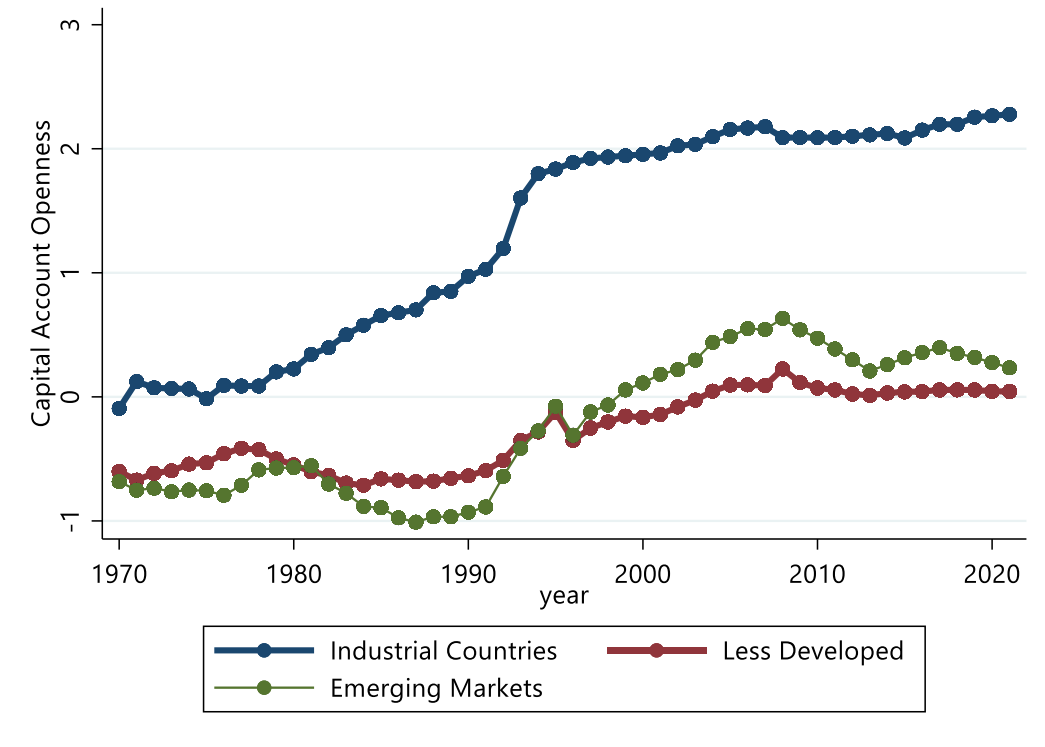
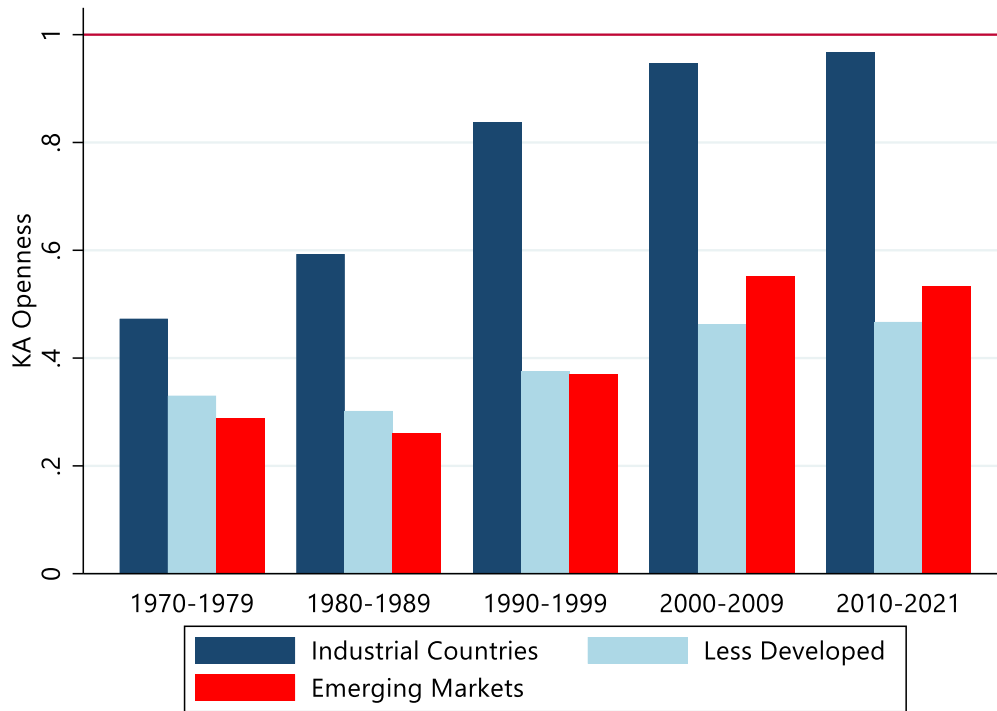
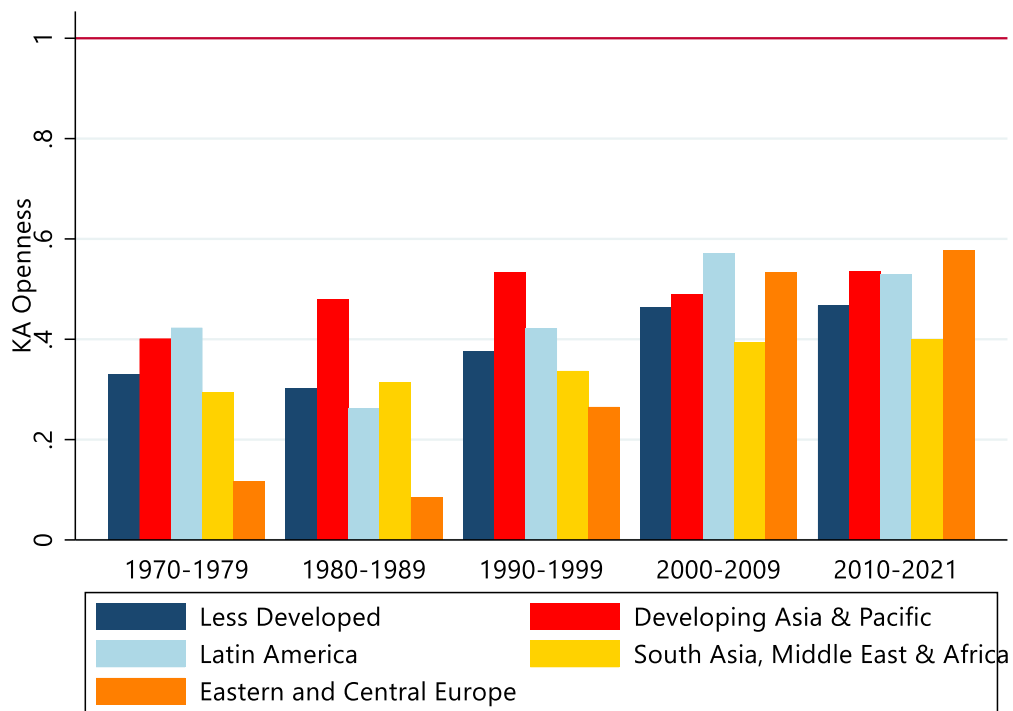


Figure 2: Comparison of *KAOPEN* across Different Income Groups



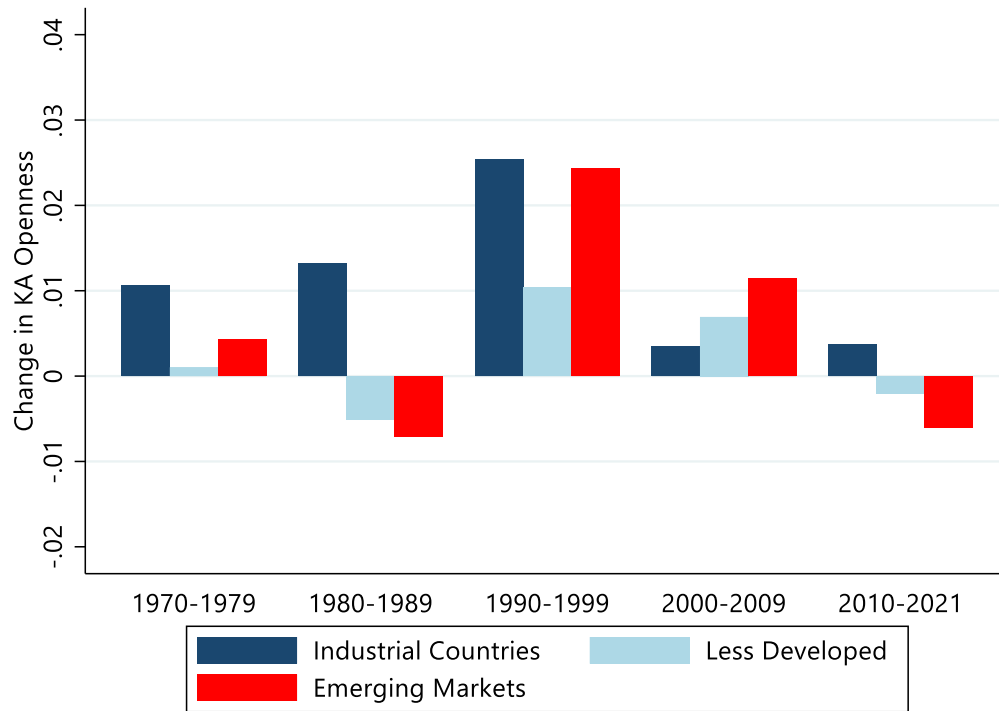
Note: The maximal value of *KAOPEN* is indexed as 1.00 for the sake of easier comparison.

Figure 3: Comparison of *KAOPEN* of Developing Countries across Different Regions



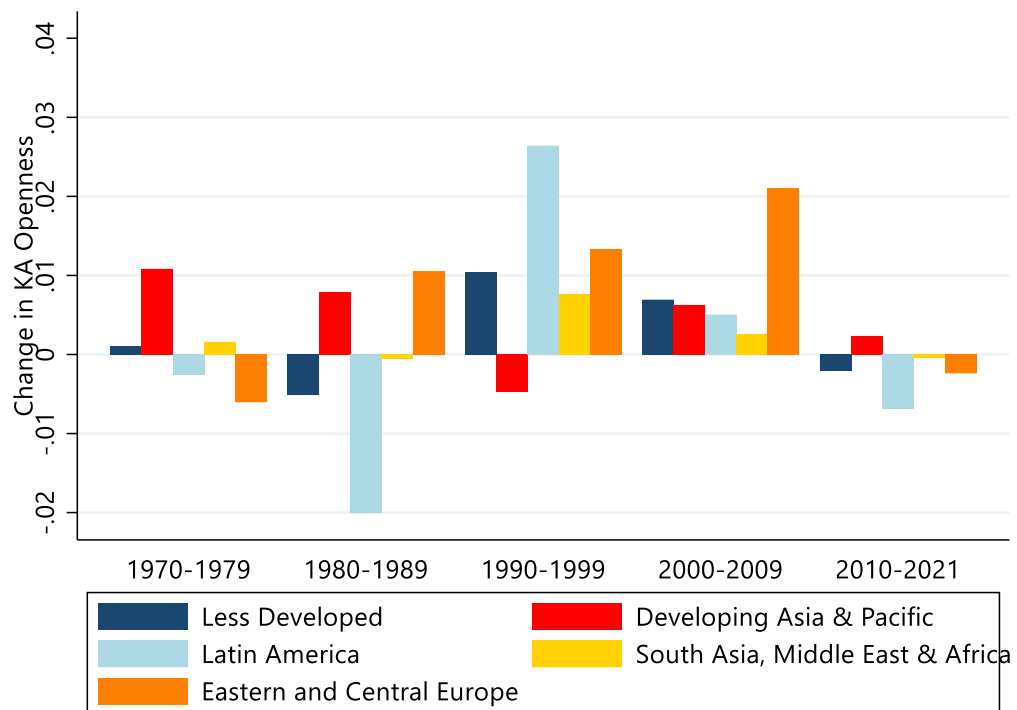
Note: The maximal value of *KAOPEN* is indexed as 1.00.

Figure 4: Change in *KAOPEN* among different income groups



Note: The change in *KAOPEN* is shown as the change in the normalized *KAOPEN* (max=1.00).

Figure 5: Change in *KAOPEN* among geographical groups of developing countries



Note: The change in *KAOPEN* is shown as the change in the normalized *KAOPEN* (max=1.00).