

Notes on
The Chinn-Ito Financial Openness Index
2018 Update

July 12, 2020

Hiro Ito (ito@pdx.edu)
Portland State University
Menzie Chinn (mchinn@lafollette.wisc.edu)
University of Wisconsin, Madison and NBER

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 2018*, which contains the information on regulatory restrictions on cross-border financial transactions as of the end of 2018.¹

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_2018.xls (Excel format) or *kaopen_2018.dta* (STATA 15 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 **1970-2018** 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 2018 using the data from *AREAER 2019*.
- 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 2018. The furthest right column indicates whether a country of concern increased (“Up”) or decreased (“Down”) the level of *KAOPEN* compared to that as of 2017. There are 52 countries that score the “most financially open” value of 2.33 as of 2018 whereas there are 11 countries with the “least financial open” score of -1.92.

Table 3 reports that 8 countries increased the level of *KAOPEN* in 2018 while 5 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 spring or summer of 2021, following the publication of the IMF’s *AREAER 2020* (probably in the winter of 2020-21) which will contain information on capital controls policies as of 2019. 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 - 2018
					31	156	CAN	Canada (i)	1970 - 2018
					32	624	CPV	Cape Verde	1982 - 2018
					33	626	CAF	Central African Republic	1970 - 2018
					34	628	TCD	Chad	1970 - 2018
					35	228	CHL	Chile (e)	1970 - 2018
					36	924	CHN	China (e)	1984 - 2018
					37	233	COL	Colombia (e)	1970 - 2018
					38	632	COM	Comoros	1981 - 2018
					39	636	ZAR	Congo, Dem. Rep.	1970 - 2018
					40	634	COG	Congo, Rep.	1970 - 2018
					41	238	CRI	Costa Rica	1970 - 2018
					42	960	HRV	Croatia	1996 - 2018
					43	423	CYP	Cyprus	1970 - 2018
					44	935	CZE	Czech Republic (e)	1996 - 2018
					45	128	DNK	Denmark (i)	1970 - 2018
					46	611	DJI	Djibouti	1982 - 2018
					47	321	DMA	Dominica	1982 - 2018
					48	243	DOM	Dominican Republic	1970 - 2018
					49	248	ECU	Ecuador (e)	1970 - 2018
					50	469	EGY	Egypt, Arab Rep. (e)	1970 - 2018
					51	253	SLV	El Salvador	1970 - 2018
					52	642	GNQ	Equatorial Guinea	1973 - 2018
					53	643	ERI	Eritrea	1998 - 2018
					54	939	EST	Estonia	1996 - 2018
					55	734	SWZ	Eswatini	1973 - 2018
					56	644	ETH	Ethiopia	1970 - 2018
					57	819	FJI	Fiji	1975 - 2018
					58	172	FIN	Finland (i)	1970 - 2018
					59	132	FRA	France (i)	1970 - 2018
					60	646	GAB	Gabon	1970 - 2018
1	512	AFG	Afghanistan	1970 - 2000					
2	914	ALB	Albania	1995 - 2018					
3	612	DZA	Algeria	1970 - 2018					
4	614	AGO	Angola	1993 - 2018					
5	311	ATG	Antigua and Barbuda	1985 - 2009					
6	213	ARG	Argentina (e)	1970 - 2018					
7	911	ARM	Armenia	1996 - 2018					
8	314	ABW	Aruba	1992 - 2018					
9	193	AUS	Australia (i)	1970 - 2018					
10	122	AUT	Austria (i)	1970 - 2018					
11	912	AZE	Azerbaijan	1996 - 2018					
12	313	BHS	Bahamas, The	1977 - 2018					
13	419	BHR	Bahrain	1976 - 2018					
14	513	BGD	Bangladesh (e)	1976 - 2018					
15	316	BRB	Barbados	1974 - 2018					
16	913	BLR	Belarus	1996 - 2018					
17	124	BEL	Belgium (i)	1970 - 2018					
18	339	BLZ	Belize	1985 - 2018					
19	638	BEN	Benin	1979 - 2018					
20	514	BTN	Bhutan	1985 - 2018					
21	218	BOL	Bolivia	1970 - 2018					
22	963	BIH	Bosnia and Herzegovina	1999 - 2018					
23	616	BWA	Botswana (e)	1972 - 2018					
24	223	BRA	Brazil (e)	1970 - 2018					
25	918	BGR	Bulgaria (e)	1994 - 2018					
26	748	BFA	Burkina Faso	1988 - 2018					
27	618	BDI	Burundi	1970 - 2018					
28	662	CIV	Côte d'Ivoire (e)	1970 - 2018					
29	522	KHM	Cambodia	1973 - 2018					

	cn	ccode	Country Name	Availability	
61	648	GMB	Gambia, The	1971	- 2018
62	915	GEO	Georgia	1996	- 2018
63	134	DEU	Germany (i)	1970	- 2018
64	652	GHA	Ghana (e)	1970	- 2018
65	174	GRC	Greece (i)	1970	- 2018
66	328	GRD	Grenada	1979	- 2018
67	258	GTM	Guatemala	1970	- 2018
68	656	GIN	Guinea	1970	- 2018
69	654	GNB	Guinea-Bissau	1981	- 2018
70	336	GUY	Guyana	1970	- 2018
71	263	HTI	Haiti	1970	- 2018
72	268	HND	Honduras	1970	- 2018
73	532	HKG	Hong Kong, China (e)	1970	- 2018
74	944	HUN	Hungary (e)	1986	- 2018
75	176	ISL	Iceland (i)	1970	- 2018
76	534	IND	India (e)	1970	- 2018
77	536	IDN	Indonesia (e)	1970	- 2018
78	429	IRN	Iran, Islamic Rep.	1970	- 2018
79	433	IRQ	Iraq	1970	- 2002
80	178	IRL	Ireland (i)	1970	- 2018
81	436	ISR	Israel (e)	1970	- 2018
82	136	ITA	Italy (i)	1970	- 2018
83	343	JAM	Jamaica (e)	1970	- 2018
84	158	JPN	Japan (i)	1970	- 2018
85	439	JOR	Jordan (e)	1970	- 2018
86	916	KAZ	Kazakhstan	1996	- 2018
87	664	KEN	Kenya (e)	1970	- 2018
88	826	KIR	Kiribati	1990	- 2005
89	542	KOR	Korea, Rep. (e)	1970	- 2018
90	443	KWT	Kuwait	1970	- 2018
91	917	KGZ	Kyrgyz Republic	1997	- 2018

	cn	ccode	Country Name	Availability	
92	544	LAO	Lao PDR	1970	- 2018
93	941	LVA	Latvia	1996	- 2018
94	446	LBN	Lebanon	1970	- 2018
95	666	LSO	Lesotho	1972	- 2018
96	668	LBR	Liberia	1970	- 2018
97	672	LBY	Libya	1970	- 2018
98	946	LTU	Lithuania (e)	1996	- 2018
99	674	MDG	Madagascar	1970	- 2018
100	676	MWI	Malawi	1970	- 2018
101	548	MYS	Malaysia (e)	1970	- 2018
102	556	MDV	Maldives	1982	- 2018
103	678	MLI	Mali	1970	- 2018
104	181	MLT	Malta (i)	1972	- 2018
105	867	MHL	Marshall Islands	1996	- 2018
106	682	MRT	Mauritania	1970	- 2018
107	684	MUS	Mauritius (e)	1972	- 2018
108	273	MEX	Mexico (e)	1970	- 2018
109	868	FSM	Micronesia, Fed. Sts.	1996	- 2018
110	921	MDA	Moldova	1996	- 2018
111	948	MNG	Mongolia	1995	- 2018
112	686	MAR	Morocco (e)	1970	- 2018
113	688	MOZ	Mozambique	1988	- 2018
114	518	MMR	Myanmar	1970	- 2018
115	728	NAM	Namibia	1994	- 2018
116	558	NPL	Nepal	1970	- 2018
117	138	NLD	Netherlands (i)	1970	- 2018
118	353	ANT	Netherlands Antilles	1970	- 2009
119	196	NZL	New Zealand (i)	1970	- 2018
120	278	NIC	Nicaragua	1970	- 2018
121	692	NER	Niger	1970	- 2018
122	694	NGA	Nigeria (e)	1970	- 2018

	cn	ccode	Country Name	Availability
123	962	MKD	North Macedonia, FYR	1997 - 2018
124	142	NOR	Norway (i)	1970 - 2018
125	449	OMN	Oman	1977 - 2018
126	564	PAK	Pakistan (e)	1970 - 2018
127	283	PAN	Panama	1970 - 2018
128	853	PNG	Papua New Guinea	1979 - 2018
129	288	PRY	Paraguay	1970 - 2018
130	293	PER	Peru (e)	1970 - 2018
131	566	PHL	Philippines (e)	1970 - 2018
132	964	POL	Poland (e)	1986 - 2018
133	182	PRT	Portugal (i)	1970 - 2018
134	453	QAT	Qatar	1976 - 2018
135	968	ROM	Romania	1976 - 2018
136	922	RUS	Russian Federation (e)	1996 - 2018
137	714	RWA	Rwanda	1970 - 2018
138	716	STP	Sao Tome and Principe	1981 - 2018
139	862	WSM	Samoa	1975 - 2018
140	135	SMR	San Marino	1996 - 2018
141	456	SAU	Saudi Arabia	1970 - 2018
142	722	SEN	Senegal	1970 - 2018
143	718	SYC	Seychelles	1981 - 2018
144	724	SLE	Sierra Leone	1970 - 2018
145	576	SGP	Singapore (e)	1970 - 2018
146	936	SVK	Slovak Republic (e)	1996 - 2018
147	961	SVN	Slovenia (e)	1996 - 2018
148	813	SLB	Solomon Islands	1982 - 2018
149	726	SOM	Somalia	1970 - 2007
150	199	ZAF	South Africa (e)	1970 - 2018
151	184	ESP	Spain (i)	1970 - 2018
152	524	LKA	Sri Lanka (e)	1970 - 2018
153	361	KNA	St. Kitts and Nevis	1988 - 2018

	cn	ccode	Country Name	Availability
154	362	LCA	St. Lucia	1983 - 2018
155	364	VCT	St. Vincent and the Grenad.	1983 - 2018
156	732	SDN	Sudan	1970 - 2018
157	366	SUR	Suriname	1970 - 2018
158	144	SWE	Sweden (i)	1970 - 2018
159	146	CHE	Switzerland (i)	1996 - 2018
160	463	SYR	Syrian Arab Republic	1970 - 2018
161	923	TJK	Tajikistan	1997 - 2018
162	738	TZA	Tanzania	1970 - 2018
163	578	THA	Thailand (e)	1970 - 2018
164	742	TGO	Togo	1970 - 2018
165	866	TON	Tonga	1989 - 2018
166	369	TTO	Trinidad and Tobago (e)	1970 - 2018
167	744	TUN	Tunisia (e)	1970 - 2018
168	186	TUR	Turkey (e)	1970 - 2018
169	925	TKM	Turkmenistan	1996 - 2018
170	746	UGA	Uganda	1970 - 2018
171	926	UKR	Ukraine	1996 - 2018
172	466	ARE	United Arab Emirates	1976 - 2018
173	112	GBR	United Kingdom (i)	1970 - 2018
174	111	USA	United States (i)	1970 - 2018
175	298	URY	Uruguay	1970 - 2018
176	927	UZB	Uzbekistan	1996 - 2018
177	846	VUT	Vanuatu	1985 - 2000
178	299	VEN	Venezuela, RB (e)	1970 - 2018
179	582	VNM	Vietnam	1970 - 2018
180	474	YEM	Yemen, Rep.	1995 - 2018
181	754	ZMB	Zambia	1970 - 2018
182	698	ZWE	Zimbabwe (e)	1984 - 2018

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 2018)

	Minimum	Mean	Median	Maximum	Standard Deviation
Full Sample	-1.92	0.00	-0.15	2.33	1.53
Industrialized Countries	-1.92	1.33	2.33	2.33	1.32
Developing Countries	-1.92	-0.23	-1.22	2.33	1.44
Emerging Markets	-1.92	-0.17	-0.40	2.33	1.44

Table 2: Country Ranking as of 2018

Ranking	Country Name	KAOPEN	Change in KAOPEN	Ranking	Country Name	KAOPEN	Change in KAOPEN
1	Australia	2.33		64	Liberia	1.13	
1	Austria	2.33		66	Chile	1.06	
1	Bahrain	2.33		66	Croatia	1.06	
1	Belgium	2.33		66	Djibouti	1.06	
1	Botswana	2.33		66	Ecuador	1.06	
1	Cambodia	2.33		66	El Salvador	1.06	
1	Canada	2.33		66	Iceland	1.06	
1	Costa Rica	2.33		66	Kenya	1.06	
1	Cyprus	2.33	Up	66	Kuwait	1.06	
1	Czech Republic	2.33		66	Marshall Islands	1.06	
1	Denmark	2.33		66	Mauritius	1.06	
1	Estonia	2.33		66	Mexico	1.06	
1	Finland	2.33		66	Poland	1.06	
1	France	2.33		66	San Marino	1.06	
1	Gambia, The	2.33		66	Saudi Arabia	1.06	
1	Georgia	2.33		66	Slovenia	1.06	
1	Germany	2.33		81	Maldives	0.56	
1	Guatemala	2.33		81	Papua New Guinea	0.56	Up
1	Haiti	2.33		81	S? Tom and Principe	0.56	Down
1	Hong Kong, China	2.33		84	Sudan	0.43	
1	Hungary	2.33		85	Russian Federation	0.36	Down
1	Ireland	2.33		86	Kyrgyz Republic	0.35	
1	Israel	2.33		87	Azerbaijan	0.06	
1	Italy	2.33		88	Bolivia	-0.01	
1	Japan	2.33		88	Lebanon	-0.01	
1	Jordan	2.33		88	Macedonia, FYR	-0.01	
1	Korea, Rep.	2.33		88	Paraguay	-0.01	
1	Latvia	2.33		88	Philippines	-0.01	
1	Malta	2.33		88	St. Lucia	-0.01	
1	Micronesia, Fed. Sts.	2.33		94	Albania	-0.15	
1	Netherlands	2.33		94	Colombia	-0.15	
1	New Zealand	2.33		94	Dominica	-0.15	
1	Nicaragua	2.33		94	Egypt, Arab Rep.	-0.15	
1	Norway	2.33		94	Indonesia	-0.15	
1	Oman	2.33		94	Jamaica	-0.15	
1	Panama	2.33		94	Malaysia	-0.15	
1	Peru	2.33		94	Vietnam	-0.15	
1	Portugal	2.33		94	Zimbabwe	-0.15	
1	Qatar	2.33		103	Nigeria	-0.64	
1	Romania	2.33		104	Tajikistan	-0.96	Up
1	Seychelles	2.33		105	Algeria	-1.22	
1	Singapore	2.33		105	Aruba	-1.22	
1	Spain	2.33		105	Bangladesh	-1.22	
1	Sweden	2.33		105	Barbados	-1.22	
1	Switzerland	2.33		105	Belarus	-1.22	
1	Uganda	2.33		105	Belize	-1.22	
1	United Arab Emirates	2.33		105	Benin	-1.22	
1	United Kingdom	2.33		105	Bhutan	-1.22	
1	United States	2.33		105	Bosnia and Herzegovina	-1.22	
1	Uruguay	2.33		105	Brazil	-1.22	
1	Yemen, Rep.	2.33		105	Burkina Faso	-1.22	
1	Zambia	2.33		105	C?e d'Ivoire	-1.22	
53	Lithuania	2.08	Up	105	Cameroon	-1.22	
54	Armenia	1.63		105	Central African Republic	-1.22	
54	Mongolia	1.63		105	Chad	-1.22	
54	Trinidad and Tobago	1.63		105	China	-1.22	
57	Argentina	1.57	Up	105	Comoros	-1.22	
57	Cape Verde	1.57	Up	105	Congo, Dem. Rep.	-1.22	
57	Dominican Republic	1.57	Up	105	Congo, Rep.	-1.22	
60	Bulgaria	1.26	Down	105	Equatorial Guinea	-1.22	
60	Greece	1.26		105	Ethiopia	-1.22	
60	Rwanda	1.26		105	Fiji	-1.22	
60	Slovak Republic	1.26		105	Gabon	-1.22	
64	Guyana	1.13		105	Grenada	-1.22	

Ranking	Country Name	KAOPEN	Change in KAOPEN
105	Guinea-Bissau	-1.22	
105	Honduras	-1.22	
105	India	-1.22	
105	Kazakhstan	-1.22	
105	Lao PDR	-1.22	
105	Lesotho	-1.22	
105	Libya	-1.22	
105	Madagascar	-1.22	
105	Malawi	-1.22	
105	Mali	-1.22	
105	Mauritania	-1.22	
105	Moldova	-1.22	
105	Morocco	-1.22	
105	Mozambique	-1.22	
105	Namibia	-1.22	
105	Nepal	-1.22	
105	Niger	-1.22	
105	Pakistan	-1.22	
105	Samoa	-1.22	
105	Senegal	-1.22	
105	Sierra Leone	-1.22	
105	Solomon Islands	-1.22	
105	South Africa	-1.22	
105	Sri Lanka	-1.22	
105	St. Kitts and Nevis	-1.22	
105	St. Vincent and the Grenadines	-1.22	
105	Suriname	-1.22	
105	Swaziland	-1.22	
105	Tanzania	-1.22	
105	Thailand	-1.22	
105	Togo	-1.22	
105	Tonga	-1.22	Down
105	Tunisia	-1.22	
105	Turkey	-1.22	Down
105	Turkmenistan	-1.22	
105	Uzbekistan	-1.22	Up
165	Angola	-1.92	
165	Bahamas, The	-1.92	
165	Burundi	-1.92	
165	Eritrea	-1.92	
165	Ghana	-1.92	
165	Guinea	-1.92	
165	Iran, Islamic Rep.	-1.92	
165	Myanmar	-1.92	
165	Syrian Arab Republic	-1.92	
165	Ukraine	-1.92	
165	Venezuela, RB	-1.92	

Table 3: Countries that increased *KAOPEN* in 2018

	Ranking	Country Name	<i>KAOPEN</i> (as of 2018)	Change in <i>KAOPEN</i>
1	57	Cape Verde	1.57	1.46
2	105	Uzbekistan	-1.22	0.70
2	81	Papua New Guinea	0.56	0.50
4	1	Cyprus	2.33	0.26
4	57	Argentina	1.57	0.26
4	57	Dominican Republic	1.57	0.26
4	104	Tajikistan	-0.96	0.26
4	53	Lithuania	2.08	0.26

Table 4: Countries that decreased *KAOPEN* in 2018

	Ranking	Country Name	<i>KAOPEN</i> (as of 2018)	Change in <i>KAOPEN</i>
1	105	Tonga	-1.22	-1.20
1	105	Turkey	-1.22	-1.20
3	60	Bulgaria	1.26	-1.07
4	81	Sao Tome and Principe	0.56	-0.70
5	85	Russian Federation	0.36	-0.26

Figure 1: Development of *KAOPEN* for Different Income Groups, 1970 – 2018

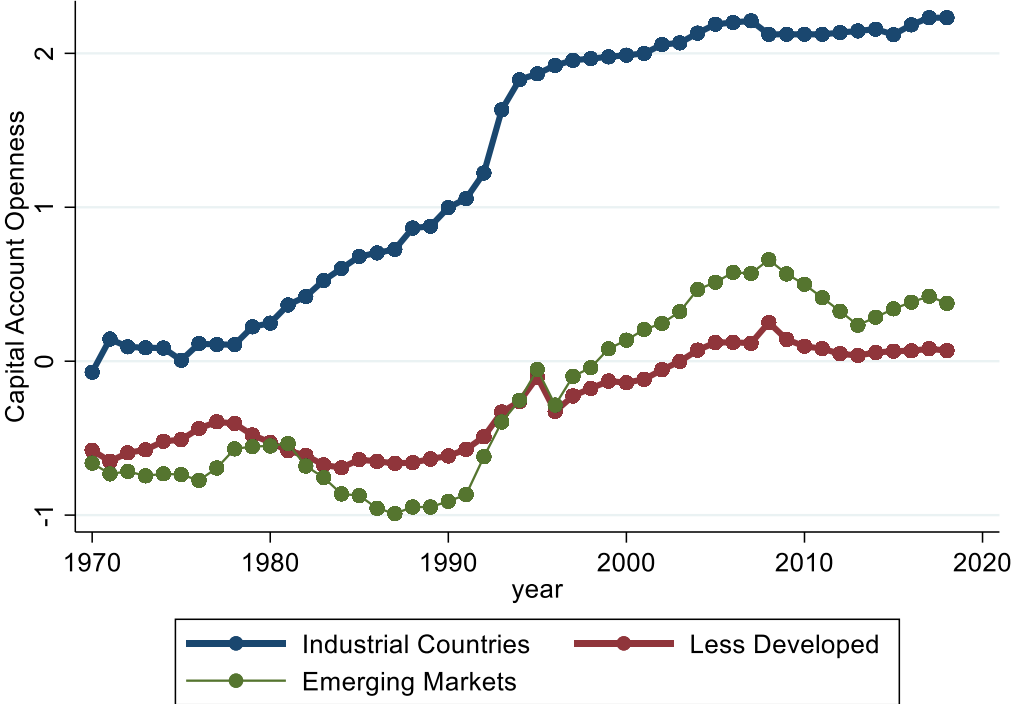
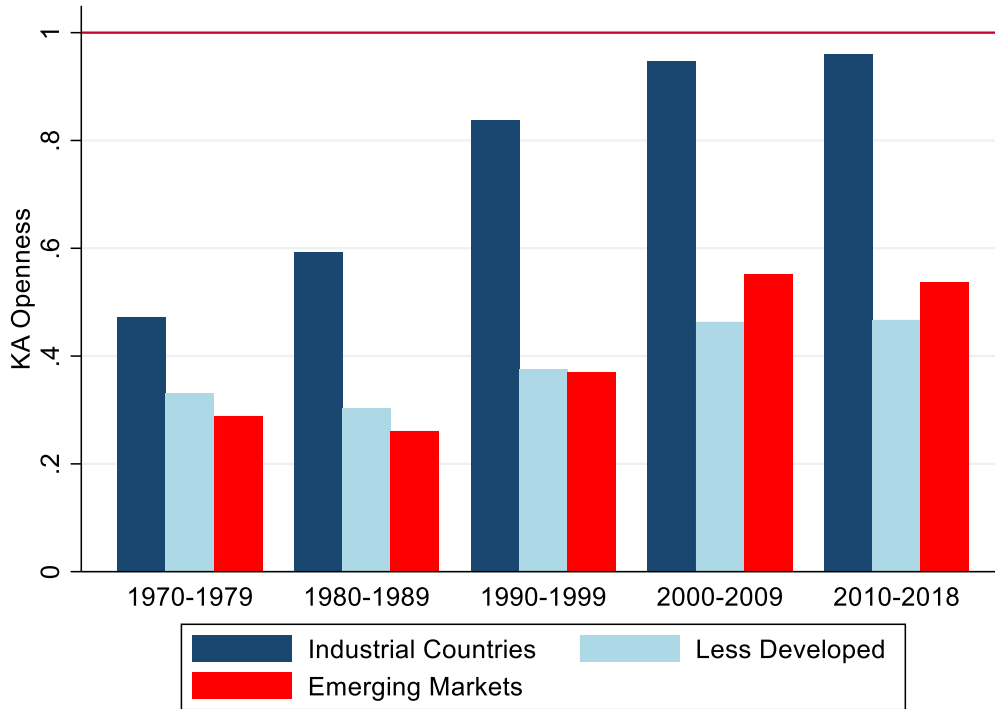
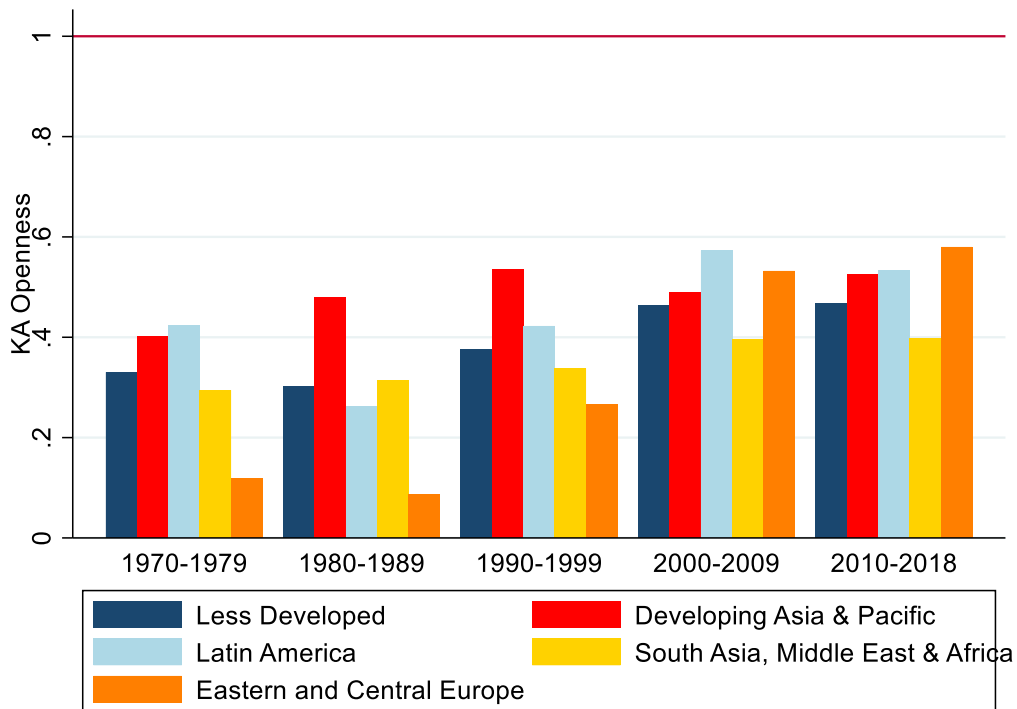


Figure 2: Comparison of *KAOPEN* across Different Income Groups



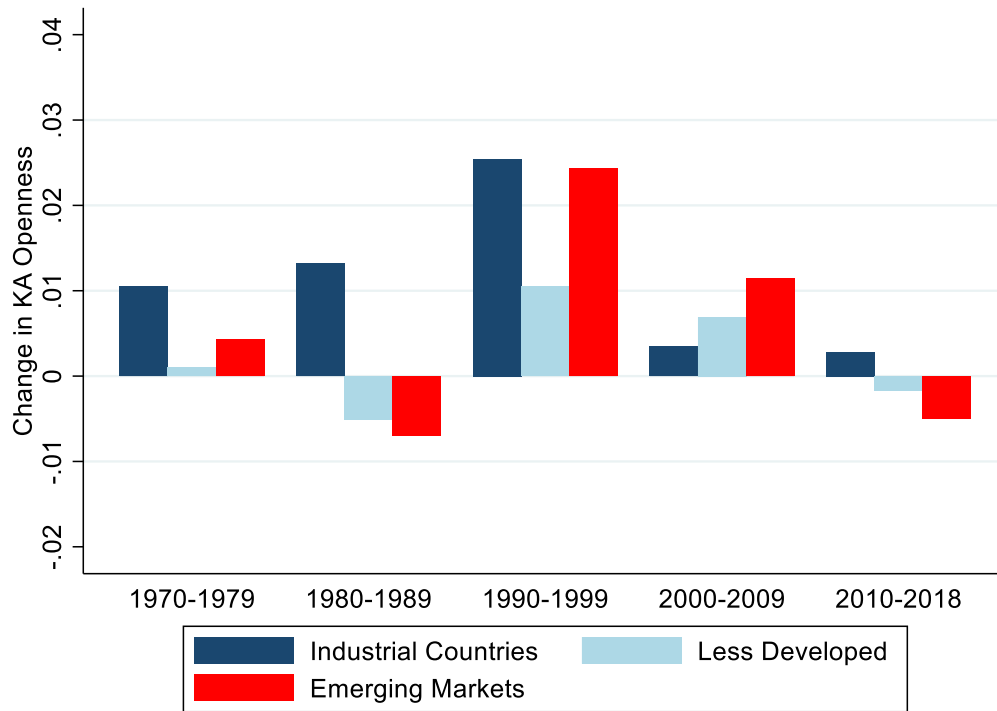
Note: The maximal value of *KAOPEN* is indexed as 1.00 for the sake of easier comparison.

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



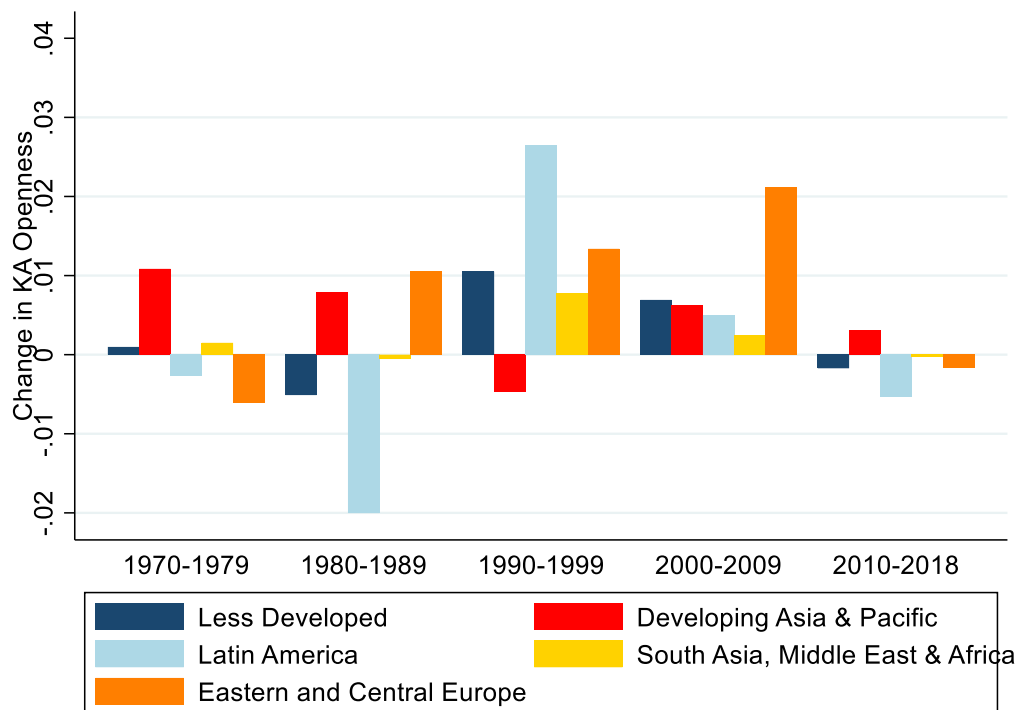
Note: The maximal value of *KAOPEN* is indexed as 1.00.

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).