



Strategic Priorities for Food System Strengthening and Transformation

Insights from the NGI Food System Index and Typology



High performing food systems are fundamental to prospects for achieving major global goals, with Zero Hunger most prominent

SUSTAINABLE DEVELOPMENT GOALS

1: No Poverty

2: Zero Hunger

3: Health

6: Water and Sanitation

12: Production and Consumption

13: Climate Action

14: Life Below Water

15: Life on Land

UN FOOD SYSTEMS SUMMIT

Nourish All People

Boost Nature-Based Solutions

Advance Equitable Livelihoods, Decent Work and Empowered Communities

Build Resilience to Vulnerabilities, Shocks, and Stresses

AGENDA 2063

High Standard of Living, Quality of Life, and Wellbeing

Healthy and Well-Nourished Citizens

Transformed Economies

But hunger is on the march again due to climate shocks, conflict, and economic deterioration linked to COVID-19 and other disruptions

Food systems are under immense pressure.

In 2021:

12 percent

of the world's population did not have enough to eat – that's nearly a billion people in 93 countries.

99 million children

under the age of five were undernourished and underweight, putting their health and futures at risk.



Photo by Alan

**And now in 2022,
food systems are
being further
hammered by
the unfolding
impacts of the
war in Ukraine**

Fuel, food, and fertilizer prices are hitting record highs.

Governments are scrambling to cushion consumers and farmers, but the immediate well-being of millions of vulnerable food insecure people is threatened.

At the same time, the medium- and long-term food system transformations required to increase efficiency, resilience, nutritiousness, and inclusion are at risk.

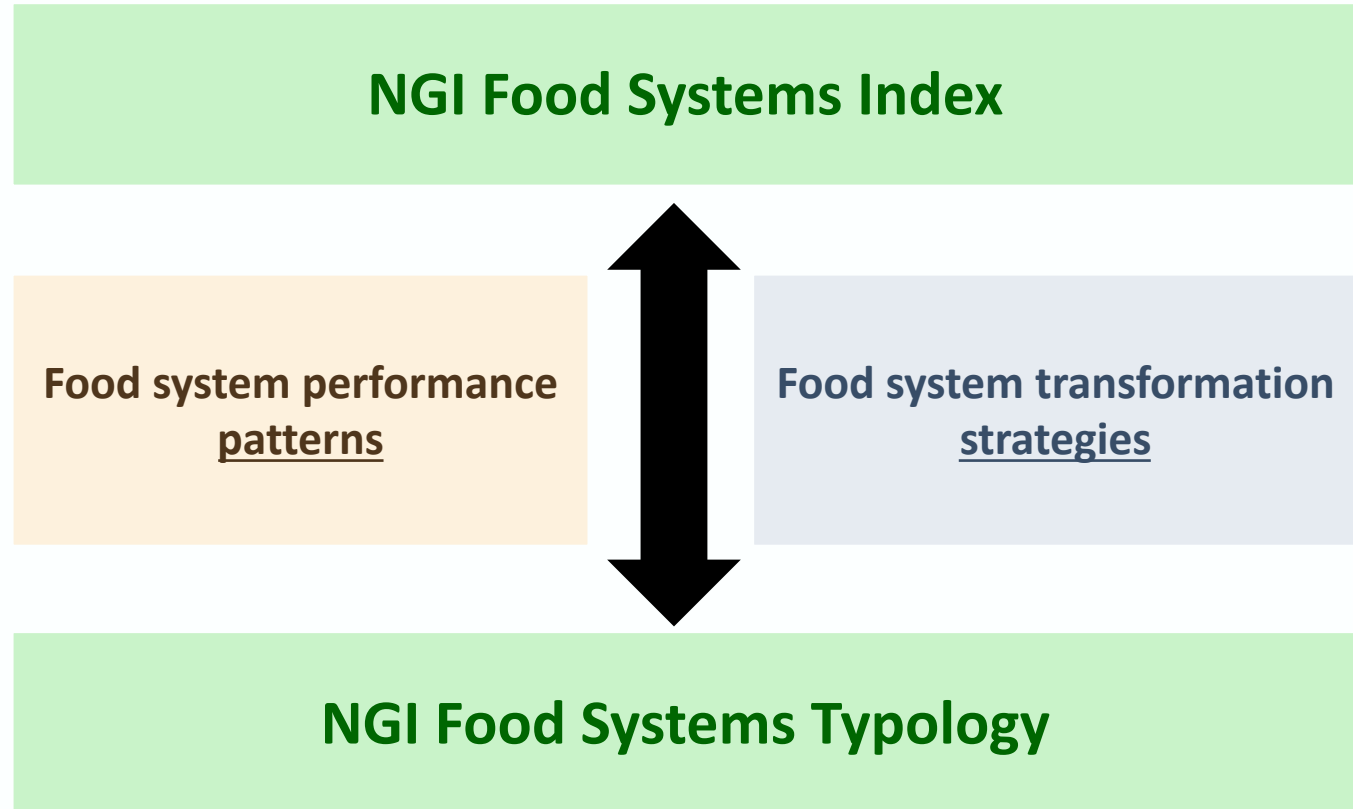


To strengthen responses to the unfolding food crisis and boost food system transformation over the longer term, fundamental questions about the performance of food systems must be addressed

1. How well were food systems functioning before the recent and current disruptions? Were they improving or deteriorating, and why?
2. What are the strengths and weaknesses of given food systems?
3. Which policies and investments are most likely to improve food system performance in given countries or regions?



NGI has created a **Food System Index** and **Food System Typology** to help answer these questions



The aim is to build a comparative understanding of the performance of food systems, identify important patterns, and ascertain the elements of context-specific food system strengthening and transformation strategies that promote hunger reduction

The result is a one-of-a-kind global, regional and country-level view of food systems

- **Countries are ranked** based on NGI Index scores and their performance classified accordingly
- **A country typology is developed** revealing country-level similarities and differences in food system performance and related measures
- **Benchmarks are proposed** for assessing country-level food system performance, along with associated country-level **scorecards**
- **With six countries as examples, the index, typology, benchmarks, and scorecards are deployed** to articulate country-specific priorities for policy reform, institutional innovation, and investment toward food system improvement and transformation and, by extension, for enhanced contributions of the food system to hunger reduction and wider development objectives



Photo by Kendra Smith

Analysis with the NGI Index and Typology yields five major findings

1. Prior to COVID-19, food systems in many countries were improving, especially in middle-income and low-income countries.
2. Still, food systems in most of these countries did not meet performance benchmarks associated with low hunger.
3. A country's income matters enormously to its food system performance but is far from the whole story. Countries with vastly different levels of income can have very similar food system performance. Levels of risk and instability are especially important.
4. It is virtually impossible for countries with high levels of social, political, and institutional risk and instability to meet the food system performance benchmarks.
5. Many of the key policy instruments for hunger-reducing food system improvement and transformation lie outside food systems. Priorities include: lowering risk and instability, boosting production capacity, protecting and augmenting purchasing power and nutrition of vulnerable groups, enhancing internal marketing and trade capacity, and strengthening climate resilience and disaster risk management.



The NGI Food System Index

What is in it? How is it constructed?

**The NGI Index
allows
comparative
analysis of food
system
performance in
four respects**

Over time:

Performance in 2015 vs performance in 2020

Over space:

Performance in 128 countries across the world

Given different levels of key related phenomena:

Income, risk and instability, and hunger

For specific countries:

Based on a performance against benchmarks for components of the Index itself and the drivers

Our methodology applies the well-known “structure-conduct-performance” framework from industrial organization economics, aiming to examine the food economy from a market system perspective

- **Structure:** pertains to exogenous factors that describe the workings of societies and economies
- **Conduct:** encompasses the four food systems components of production, marketing and trade, consumption, and governance and institutions
- **Performance:** captures the outcomes of food system functioning with respect to hunger, nutrition, environment, inclusion, and equity

There have been several efforts to develop food system indexes with these features

These are the most prominent:

- The Economist Intelligence Unit [Global Food Security Index](#)
- The World Food Programme [World Food Assistance Report 2017](#)
- The 2020 GAIN and Johns Hopkins University [Food Systems Dashboard and Typology](#)
- The 2021 Wageningen University [Food Systems Index](#)

Several best practice principles for food system indexes have emerged from these efforts

1. Include as many countries as possible in order to enable cross-country comparison
2. Use publicly accessible data, regularly published, and validated by respected international agencies
3. Use simple indicators that represent key food system dimensions and are collected on a regular base
4. Register major achievements and are sensitive to change over time
5. Capture key aspects of the food system, ranging from drivers (inputs) to components (throughput) to outcomes (output & impact)
6. Permit an understanding of the linkages between drivers and outcomes of food system transformation
7. Avoid redundancy
8. Ensure relevance for policy-making

Applying these principles, the NGI Index covers the four basic food system components



The 2022 version of the NGI Index contains 8 indicators for 128 countries

Production

1. Arable land per capita (ha)^{1/}
2. Cereal yield (kg/ha)^{1/}

Markets and Trade

3. Food price inflation^{2/}
4. Per capita road network density (km)^{1/, 3/, 4/}
5. Logistics Performance Index^{1/}

Consumption

6. Share of dietary energy from starchy staples (kcal/cap/day)^{2/}
7. Poverty rate (share of population below \$1.90 poverty line)^{5/}

Governance and Institutions

8. Ease of doing business)^{1/}

Data Sources: 1/ World Bank; 2/ FAOSTAT; 3/ Statistica; 4/ CIA; 5/ Our World in Data

The 8 indicators are proxies for major food system features

Component	Indicator	Proxy for
Production	Arable land per capita	Natural capital
	Cereal yield (kg per hectare)	Productivity
Markets and Trade	Food price inflation	Affordability
	Road network density (km per capita)	Infrastructural stock
	Logistics Performance Index	Quality of supply chain
Consumption	Share of dietary energy supply derived from cereals, roots and tubers (kcal/cap/day) (3-year average)	Consumption patterns; dietary diversity; purchasing power
	Poverty rate (% of population below \$1.90 poverty line)	Purchasing power
Governance and Institutions	Ease of doing business	Quality of institutions

Pragmatic application of best practices for food system indexes meant that indicators capturing some phenomena highly relevant to food systems were not included

Due to limited geographical coverage, patchy availability over time, or total absence of relevant data series, the 2022 NGI Index does not include indicators for:

- Gender differentiation
- Climate and environment
- Social protection/safety nets
- Finance and debt
- International Trade
- Energy
- Education

Inclusion of available indicators for many of these variables would have significantly reduced the country coverage

Where possible, relevant indicators for these phenomena will be included in the next version of the Index, either within it or as conditioning factors



The NGI Index was constructed rigorously

1. The Index is constructed for two years – 2015 and 2020
2. For every indicator and country, the latest year available in the 5-year time span preceding the year of reference is used – i.e., 2011-2015 for 2015 and 2016-2020 for 2020s
3. To ensure uniformity, each indicator is normalized using z scores (standard normal variables with mean = 0 and standard deviation = 1) across the two time points
4. The indicators are combined through simple weighting in sub-indexes for the four food system components: production, trade and markets, consumption and governance
5. Sub-indexes are combined through simple weighting to obtain the NGI Index for 2015 and 2020
6. The NGI Indexes for 2020 and 2015 are scaled from 0 to 100 using the min-max method



What does the NGI Index reveal?

The 128 countries included in the Index fall into four broad classes of food system performance

VERY HIGH

Index Score > 60

HIGH

Index Score = 45-60

LOW

Index Score = 30-45

VERY LOW

Index Score < 30

**37 countries
had very high
food system
performance in
2020**

Rank	Country	Score
1	Australia	97.4
2	Finland	95.1
3	Canada	92.0
4	United Arab Emirates	92.0
5	United States	89.4
6	Sweden	87.5
7	Kazakhstan	86.5
8	Estonia	82.7
9	Lithuania	80.9
10	Denmark	80.6
11	Latvia	79.4
12	Iceland	76.4
13	Austria	74.6
14	Hungary	74.1
15	France	73.9
16	Germany	73.5
17	United Kingdom	72.2
18	Belgium	71.9
19	Ireland	71.7

Rank	Country	Score
20	Spain	71.6
21	Netherlands	70.8
22	Norway	70.0
23	Russian Federation	70.0
24	Czech Republic	69.4
25	Switzerland	69.1
26	Korea, Rep	65.0
27	Japan	64.9
28	Slovenia	64.6
29	Poland	64.3
30	Slovak Republic	64.2
31	Croatia	63.8
32	Belarus	62.7
33	Romania	62.7
34	Serbia	62.0
35	Ukraine	61.6
36	Bulgaria	61.3
37	Italy	60.8



**26 countries
had high food
system
performance in
2020**

Rank	Country	Score
38	Uruguay	60.1
39	Luxembourg	59.5
40	Thailand	59.4
41	Moldova	59.2
42	Malaysia	59.2
43	China	58.9
44	Argentina	58.3
45	Turkey	57.5
46	Israel	56.6
47	Chile	56.6
48	Greece	56.6
49	Mauritius	56.5
50	Montenegro	54.3

Rank	Country	Score
51	Cyprus	54.2
52	Colombia	52.4
53	Mexico	52.4
54	Costa Rica	51.7
55	Bosnia and Herzegovina	51.1
56	Georgia	51.0
57	Mongolia	50.4
58	Armenia	49.9
59	Paraguay	49.6
60	Malta	48.4
61	Vietnam	48.3
62	Brazil	48.3
63	South Africa	47.4

**24 countries
had low food
system
performance in
2020**

Rank	Country	Score
64	India	44.5
65	Jamaica	44.2
66	Peru	43.2
67	Kyrgyz Republic	42.8
68	Morocco	42.8
69	Dominican Republic	42.5
70	Indonesia	41.8
71	Uzbekistan	41.3
72	Jordan	39.9
73	El Salvador	38.6
74	Fiji	38.5
75	Sri Lanka	37.7

Rank	Country	Score
76	Philippines	36.9
77	Rwanda	35.9
78	Kenya	35.8
79	Ecuador	35.4
80	Pakistan	35.2
81	Bolivia	35.2
82	Egypt, Arab Rep	34.6
83	Iran, Islamic Rep	34.5
84	Guatemala	34.4
85	Tajikistan	33.5
86	Lebanon	31.4
87	Nepal	31.3

41 countries had very low food system performance in 2020

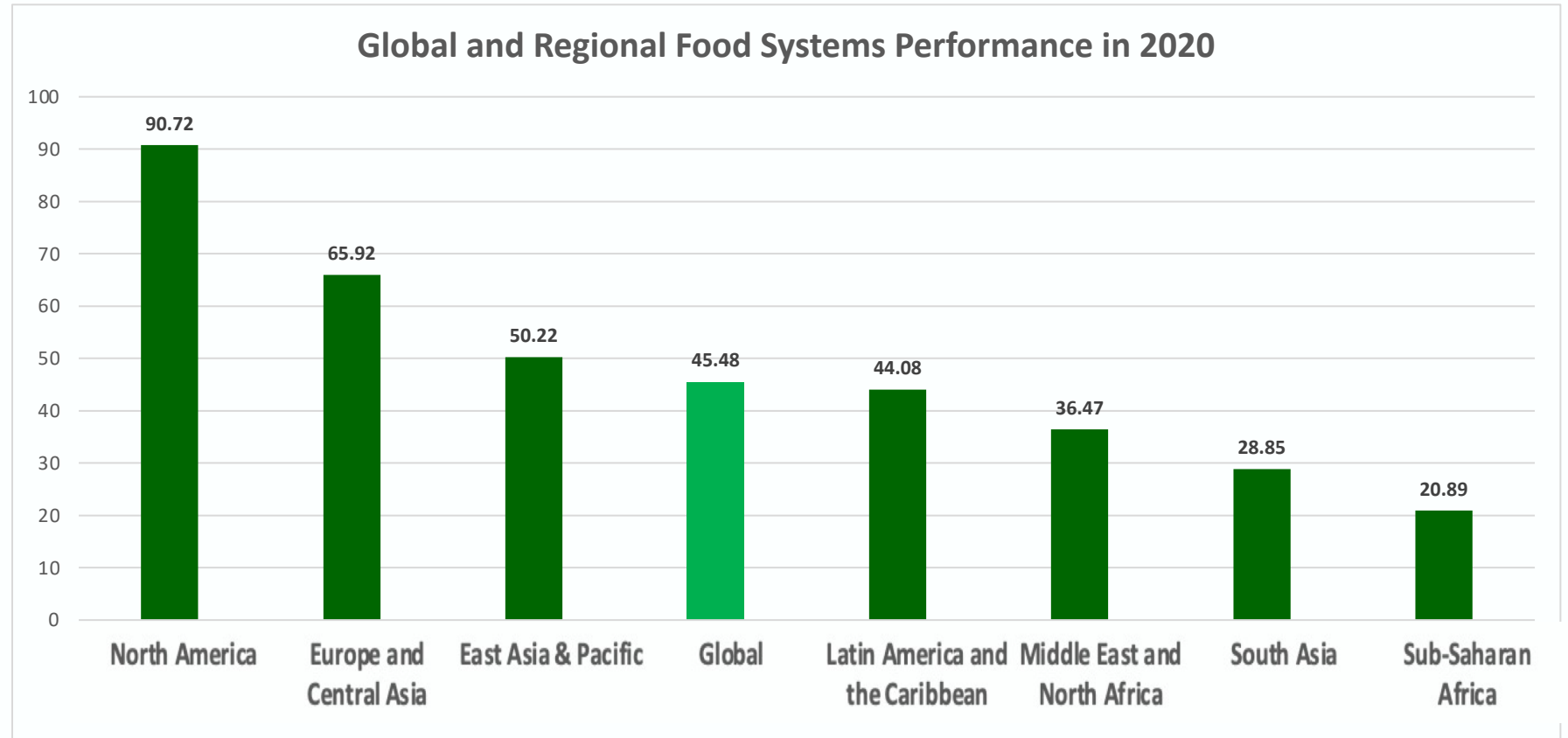
Rank	Country	Score
88	Honduras	29.6
89	Lao PDR	28.5
90	Cote d'Ivoire	28.3
91	Djibouti	28.1
92	Uganda	27.9
93	Ghana	27.7
94	Myanmar	27.6
95	Niger	27.4
96	Algeria	26.5
97	Cambodia	26.1
98	Sudan	25.2
99	Togo	23.1
100	Mauritania	22.8
101	Gabon	22.6
102	Zambia	22.0

Rank	Country	Score
103	Cameroon	21.3
104	Gambia, The	21.3
105	Tanzania	20.8
106	Senegal	20.4
107	Iraq	20.2
108	Mali	20.0
109	Lesotho	19.1
110	Burkina Faso	19.0
111	Guinea	18.9
112	Zimbabwe	18.4
113	Nigeria	17.0
114	Bangladesh	16.8
115	Malawi	16.8
116	Benin	15.8
117	Ethiopia	13.7

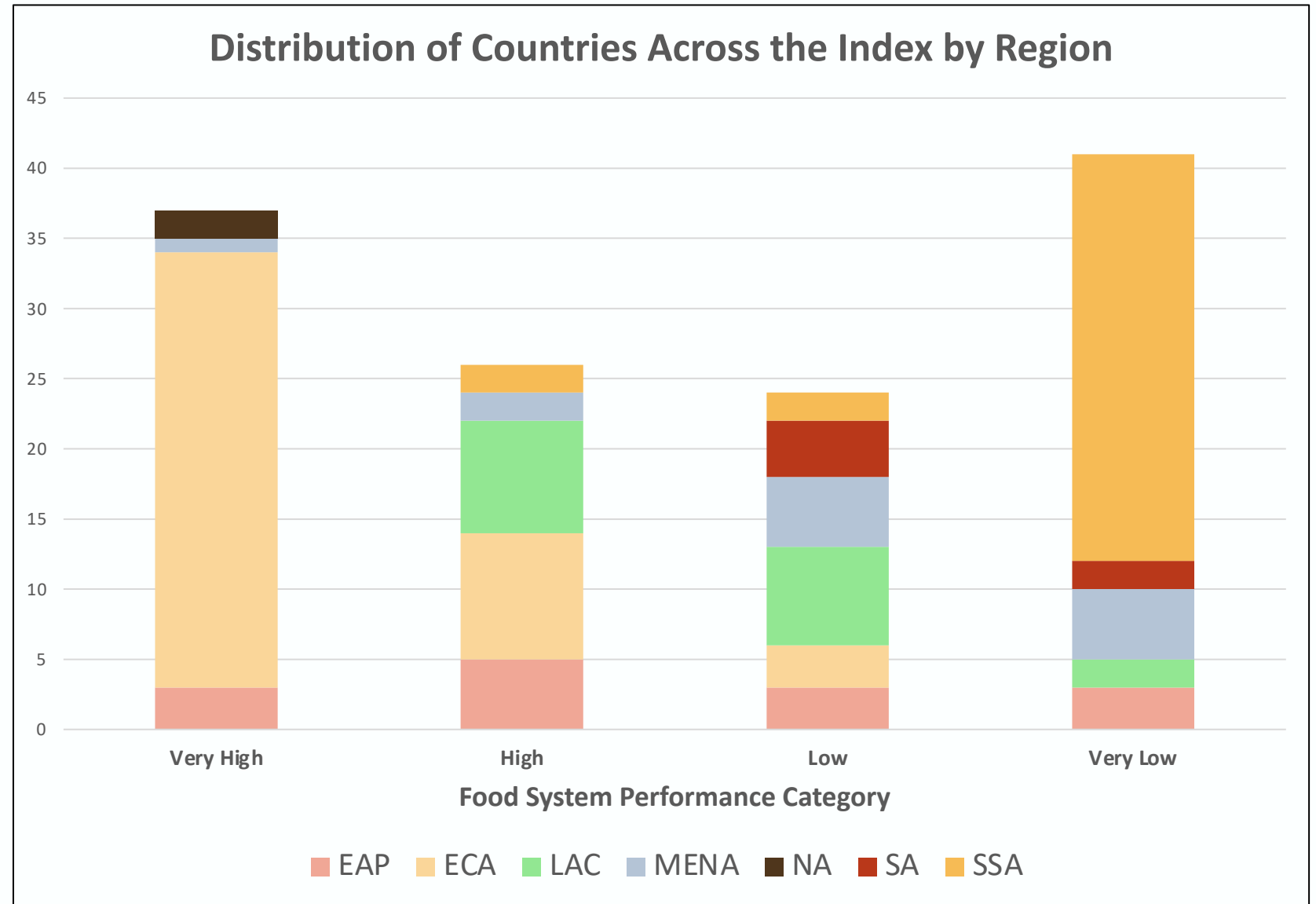
Rank	Country	Score
118	Haiti	13.7
119	Syrian Arab Republic	13.5
120	Mozambique	10.7
121	Chad	10.5
122	Afghanistan	7.6
123	Angola	5.9
124	Congo, Rep	5.7
125	Guinea-Bissau	5.1
126	Liberia	4.8
127	Madagascar	1.6
128	Yemen, Rep	0.3



There was wide variation in performance across the regions



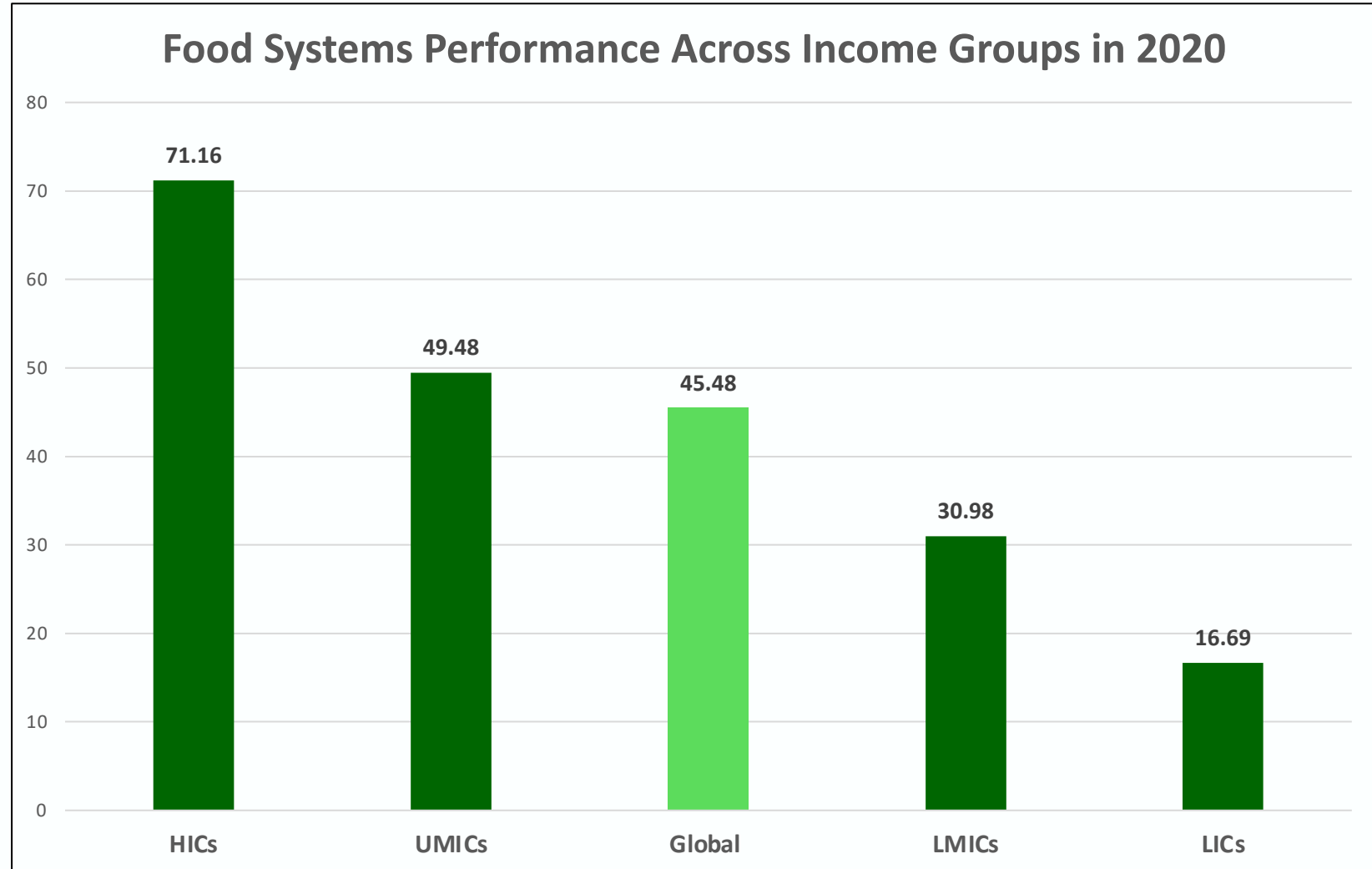
All regions except North America were represented in most of the performance categories



EAP = East Asia and Pacific; **ECA** = Europe and Central Asia; **LAC** = Latina America and the Caribbean; **MENA** = Middle East and North Africa; **NA** = North America; **SA** = South Asia; **SSA** = Sub-Saharan Africa

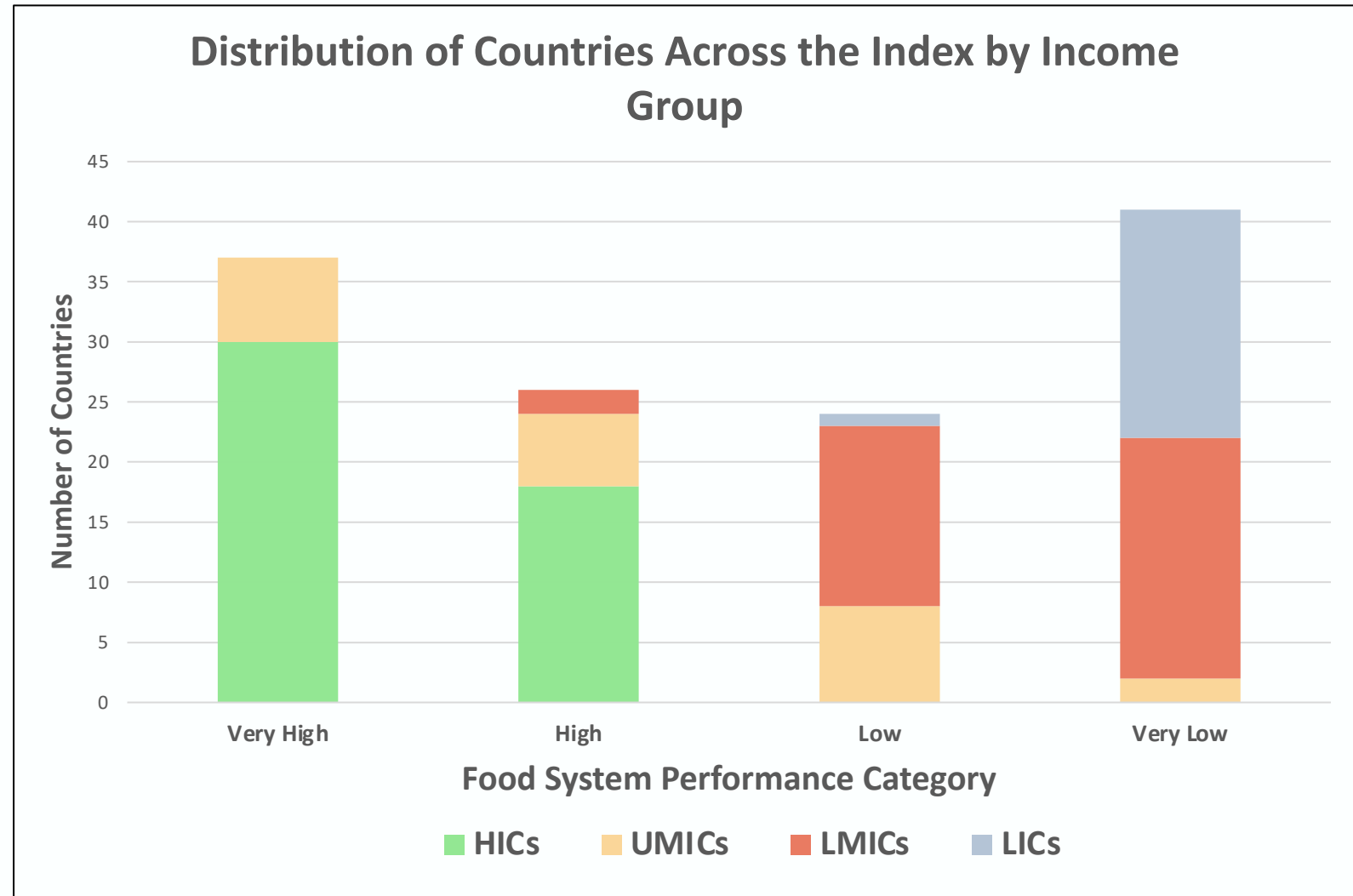


Performance also varied significantly across income groups



HICs = High income countries; UMICs = Upper middle-income countries; LMICs = Lower middle-income countries; LICs = Low income countries

HICs and LICs clustered in the high and low performance categories, respectively. But MICs appeared in all performance categories



HICs = High income countries; UMICs = Upper middle-income countries; LMICs = Lower middle-income countries; LICs = Low income countries

**Between
2015 and
2020
performance
improved in
58 countries**



Rank	Country	Change
1	India	13.41
2	Kenya	13.40
3	Djibouti	13.30
4	Togo	10.47
5	China	9.33
6	Cote d'Ivoire	9.09
7	Indonesia	8.83
8	Mauritius	7.62
9	Uzbekistan	6.47
10	Cambodia	5.41
11	Rwanda	5.36
12	Serbia	5.19
13	Nigeria	5.16
14	Russian Federation	4.75
15	Tajikistan	4.72
16	Vietnam	4.68
17	Senegal	4.61
18	Benin	4.47
19	Malawi	4.46
20	Mauritania	4.39

Rank	Country	Change
21	Thailand	4.28
22	Jordan	4.19
23	Ukraine	4.18
24	Kazakhstan	4.14
25	Niger	3.73
26	Afghanistan	3.50
27	Guinea	3.40
28	Georgia	2.87
29	Bangladesh	2.83
30	Pakistan	2.73
31	Myanmar	2.35
32	Tanzania	2.34
33	Mali	2.30
34	Sri Lanka	2.03
35	Costa Rica	2.03
36	Spain	2.00
37	Cameroon	1.93
38	Morocco	1.85
39	Uganda	1.82
40	Guinea-Bissau	1.82

Rank	Country	Change
41	United States	1.64
42	Madagascar	1.57
43	Colombia	1.48
44	Bosnia and Herzegovina	1.47
45	Austria	1.39
46	Burkina Faso	1.24
47	Moldova	1.02
48	Israel	0.93
49	Cyprus	0.89
50	Philippines	0.76
51	Mozambique	0.70
52	Bolivia	0.70
53	Egypt, Arab Rep	0.65
54	Gambia, The	0.52
55	Japan	0.40
56	Turkey	0.20
57	Romania	0.16
58	Nepal	0.16

**Average gain = 3.75
Average 2020 Score = 42.19**

**Between 2015
and 2020
performance
declined in 70
countries**



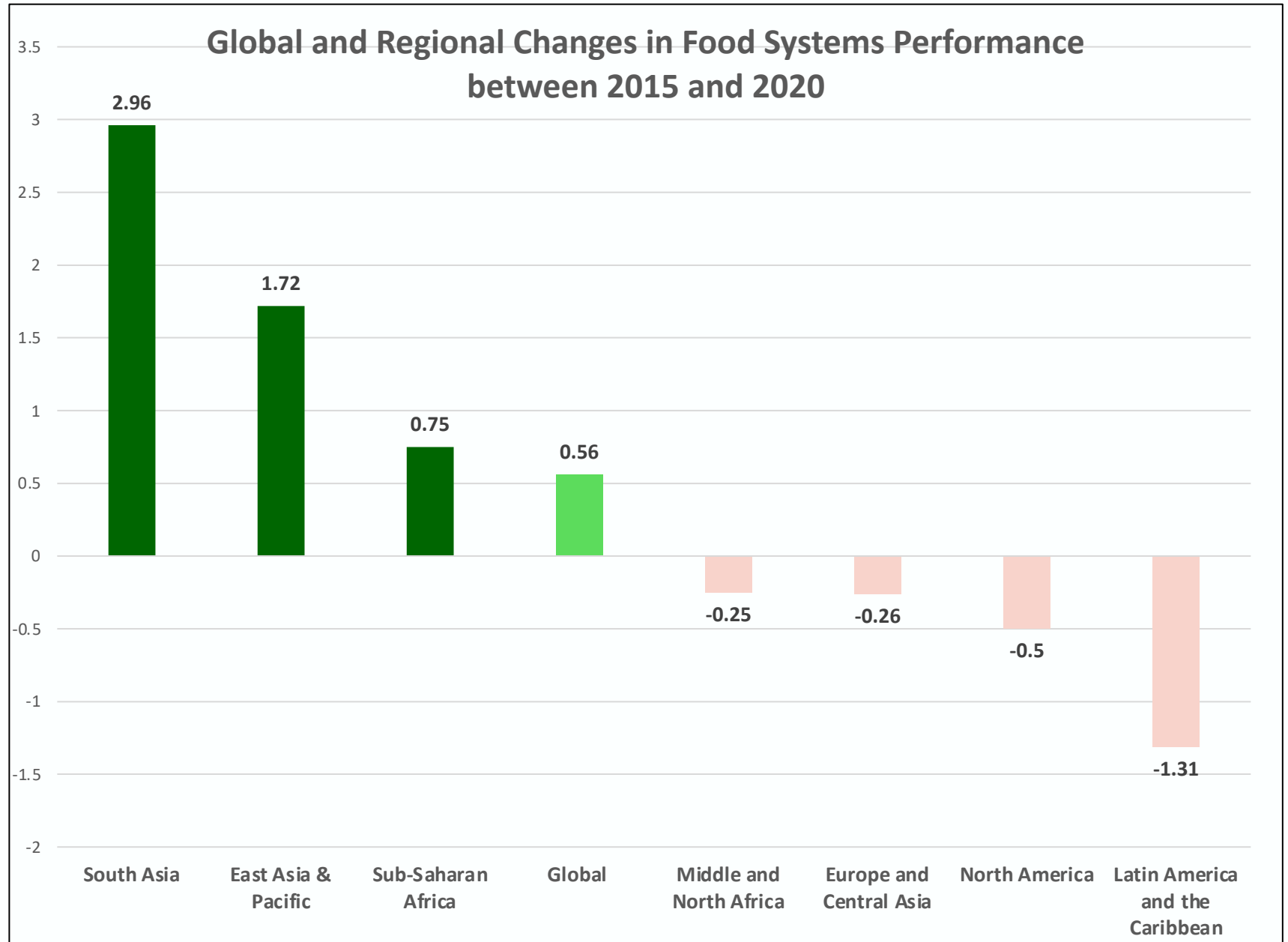
Rank	Country	Change
59	Kyrgyz Republic	-0.01
60	Algeria	-0.07
61	Croatia	-0.10
62	Lesotho	-0.24
63	Zambia	-0.27
64	Haiti	-0.28
65	Ethiopia	-0.54
66	Finland	-0.60
67	Hungary	-0.70
68	Lao PDR	-0.73
69	Korea, Rep	-0.77
70	Lithuania	-0.86
71	El Salvador	-0.95
72	United Arab Emirates	-0.96
73	Slovenia	-1.05
74	Montenegro	-1.09
75	Ghana	-1.10
76	Malaysia	-1.11
77	Czech Republic	-1.24
78	Iran, Islamic Rep	-1.29
79	Chile	-1.54
80	Denmark	-1.58
81	Switzerland	-1.68
82	Sudan	-1.74

Rank	Country	Change
83	Jamaica	-1.74
84	Poland	-2.03
85	Zimbabwe	-2.04
86	Italy	-2.05
87	United Kingdom	-2.11
88	France	-2.14
89	Belgium	-2.14
90	Mexico	-2.24
91	Ecuador	-2.27
92	Armenia	-2.48
93	Brazil	-2.48
94	Belarus	-2.49
95	Germany	-2.49
96	Australia	-2.55
97	Estonia	-2.60
98	Congo, Rep	-2.62
99	Canada	-2.64
100	Slovak Republic	-2.71
101	Chad	-2.73
102	Honduras	-2.75
103	Uruguay	-2.77
104	Liberia	-2.80
105	Argentina	-2.86
106	Iraq	-2.89

Rank	Country	Change
107	Malta	-2.98
108	Bulgaria	-3.06
109	Mongolia	-3.14
110	Gabon	-3.21
111	Iceland	-3.48
112	Sweden	-3.53
113	Netherlands	-3.59
114	Latvia	-3.64
115	Fiji	-3.73
116	Lebanon	-3.76
117	Greece	-3.78
118	Guatemala	-4.13
119	Luxembourg	-4.70
120	Norway	-4.82
121	Angola	-4.92
122	Dominican Republic	-5.05
123	Peru	-5.14
124	Ireland	-5.37
125	South Africa	-5.54
126	Paraguay	-5.63
127	Yemen, Rep	-6.65
128	Syrian Arab Republic	-10.79

Average loss = 2.57
Average 2020 Score = 47.94

Changes in food system performance between 2015 and 2020 differed significantly across regions



The significant drivers of food system improvement and deterioration varied by region

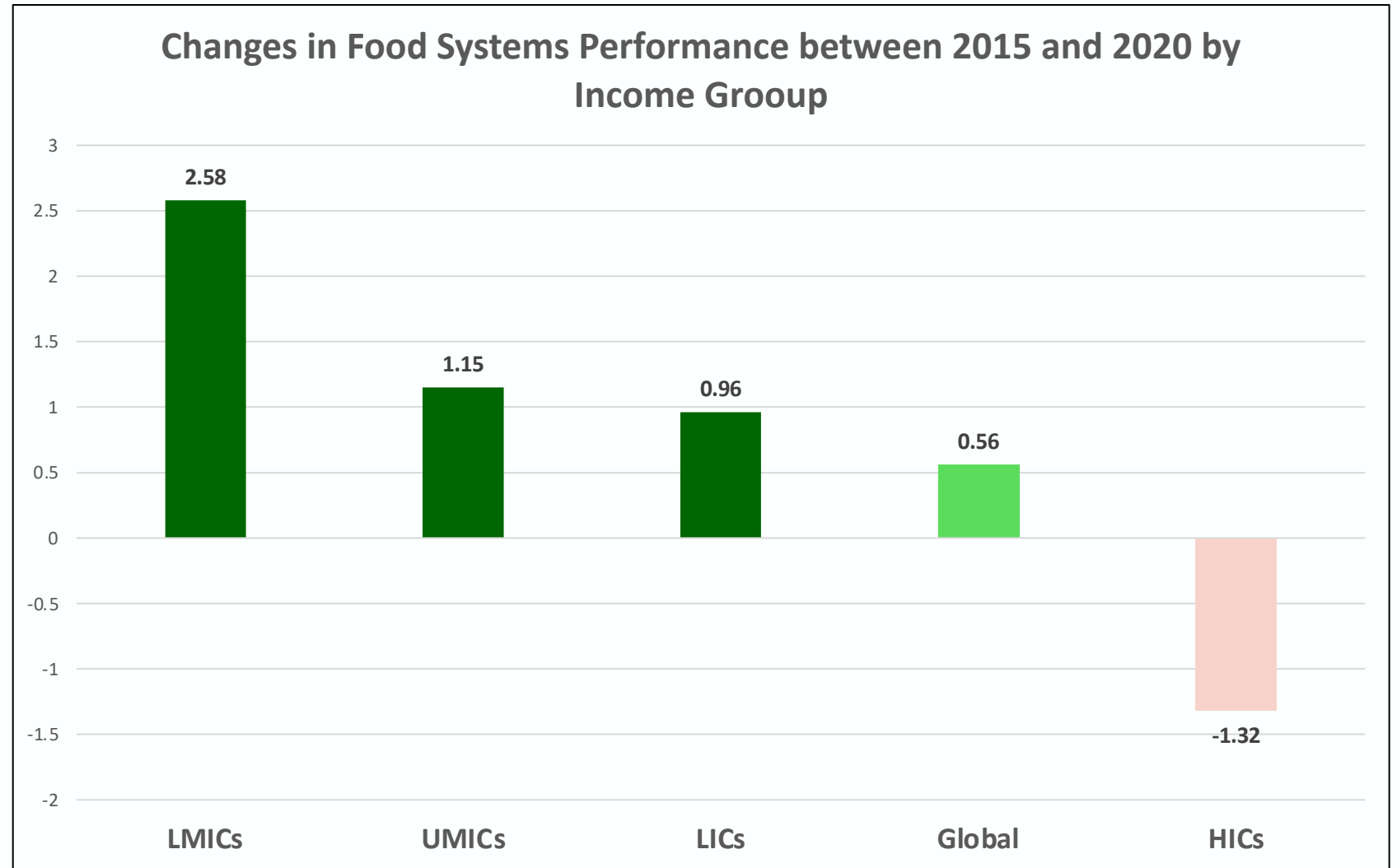
Indicator	EAP	ECA	LAC	MENA	NA	SA	SSA
2015-2020 Change in NGI Index	+1.72	-0.56	-1.31	-0.25	-0.01	+2.96	+0.75
Arable land							
Cereal yields	Improvement	Deterioration	Improvement	Deterioration	Improvement	Improvement	Improvement
Food price inflation	Improvement			Deterioration		Improvement	
Road density						Improvement	
Logistics and supply chain capacity		Deterioration	Deterioration	Deterioration	Deterioration		Improvement
Energy from starch staples							Improvement
Poverty rate	Improvement			Deterioration			
Business environment	Improvement	Deterioration	Deterioration		Deterioration	Improvement	Improvement

Key: Improvement Deterioration

EAP = East Asia and Pacific; ECA = Europe and Central Asia; LAC = Latina America and the Caribbean; MENA = Middle East and North Africa; NA = North America; SA = South Asia; SSA = Sub-Saharan Africa



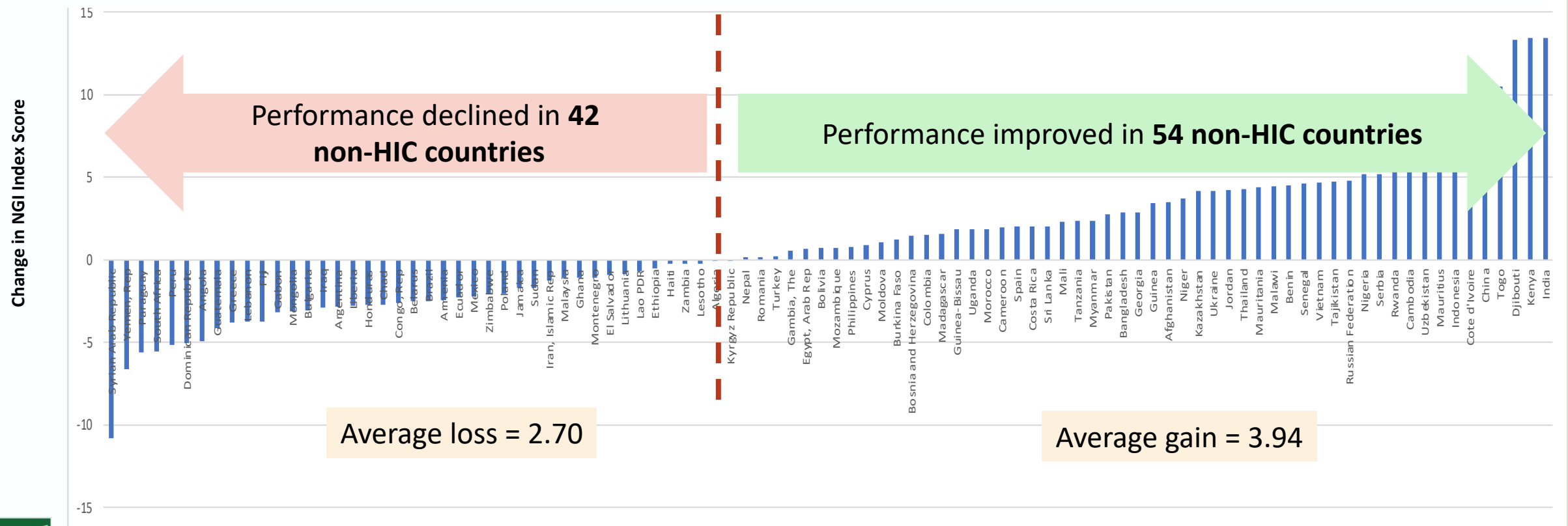
Changes in food system performance between 2015 and 2020 also varied widely across income groups



HICs = High income countries; UMICs = Upper middle-income countries; LMICs = Lower middle-income countries; LICs = Low income countries



Across countries, with HICs excluded, there was more improvement than decline in performance between 2015 and 2020



The significant drivers of food system improvement and deterioration varied by income group

Indicator	HICs	UMICs	LMICs	LICs
2015-2020 Change in NGI Index	-1.32	+1.15	+0.95	+2.58
Arable land				
Cereal yields				
Food price inflation				
Road density				
Logistics and supply chain capacity				
Energy from starch staples				
Poverty rate				
Business environment				

Key: Improvement Deterioration

HICs = High income countries; *UMICs* = Upper middle-income countries;
LMICs = Lower middle-income countries; *LICs* = Low income countries



The NGI Food System Typology

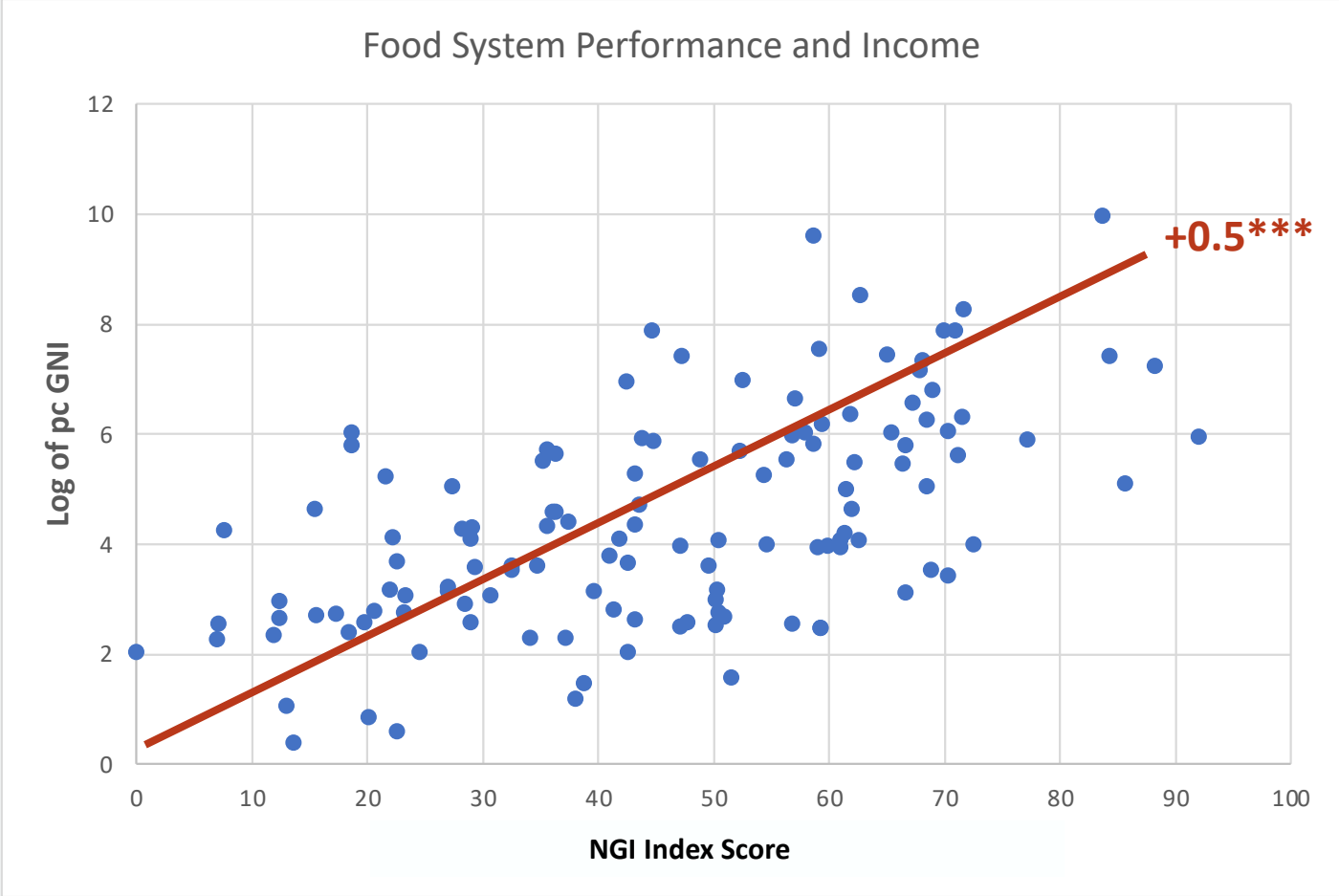
Because food systems are embedded within wider economies and societies, the NGI Index is examined alongside other phenomena that theory and evidence suggest define and reflect conditions in food systems

Phenomenon	Indicator	Expected Relationship
Income	Per capita GNI	+ve
Risk and Instability	INFORM Risk Index	-ve
Hunger	IFPRI Global Hunger Index	-ve



**The index performs according to expectations,
building confidence in its construction and
confirming the potential value of a typology**

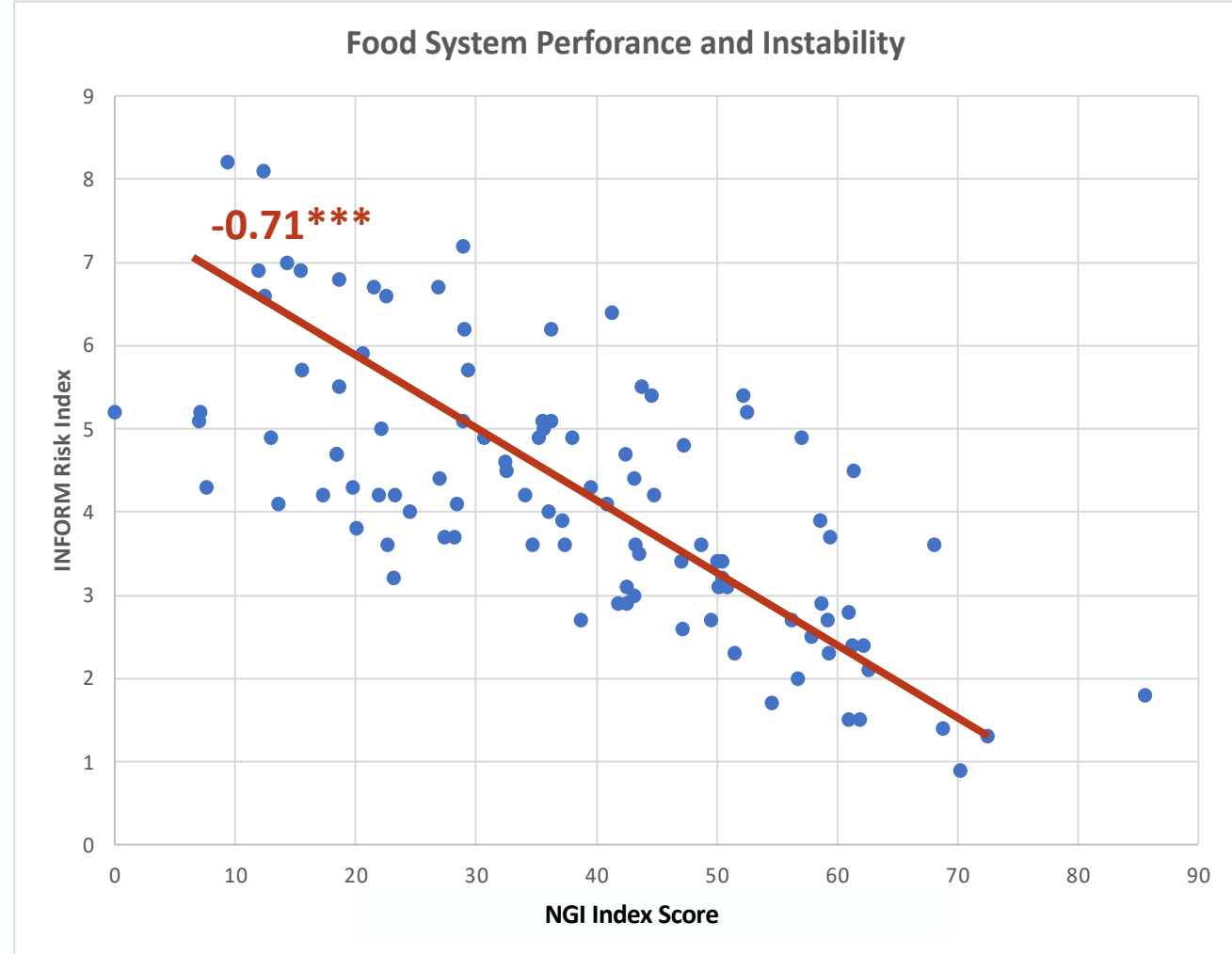
The higher the income, the higher the food system performance



*** indicates significance at 1 percent level

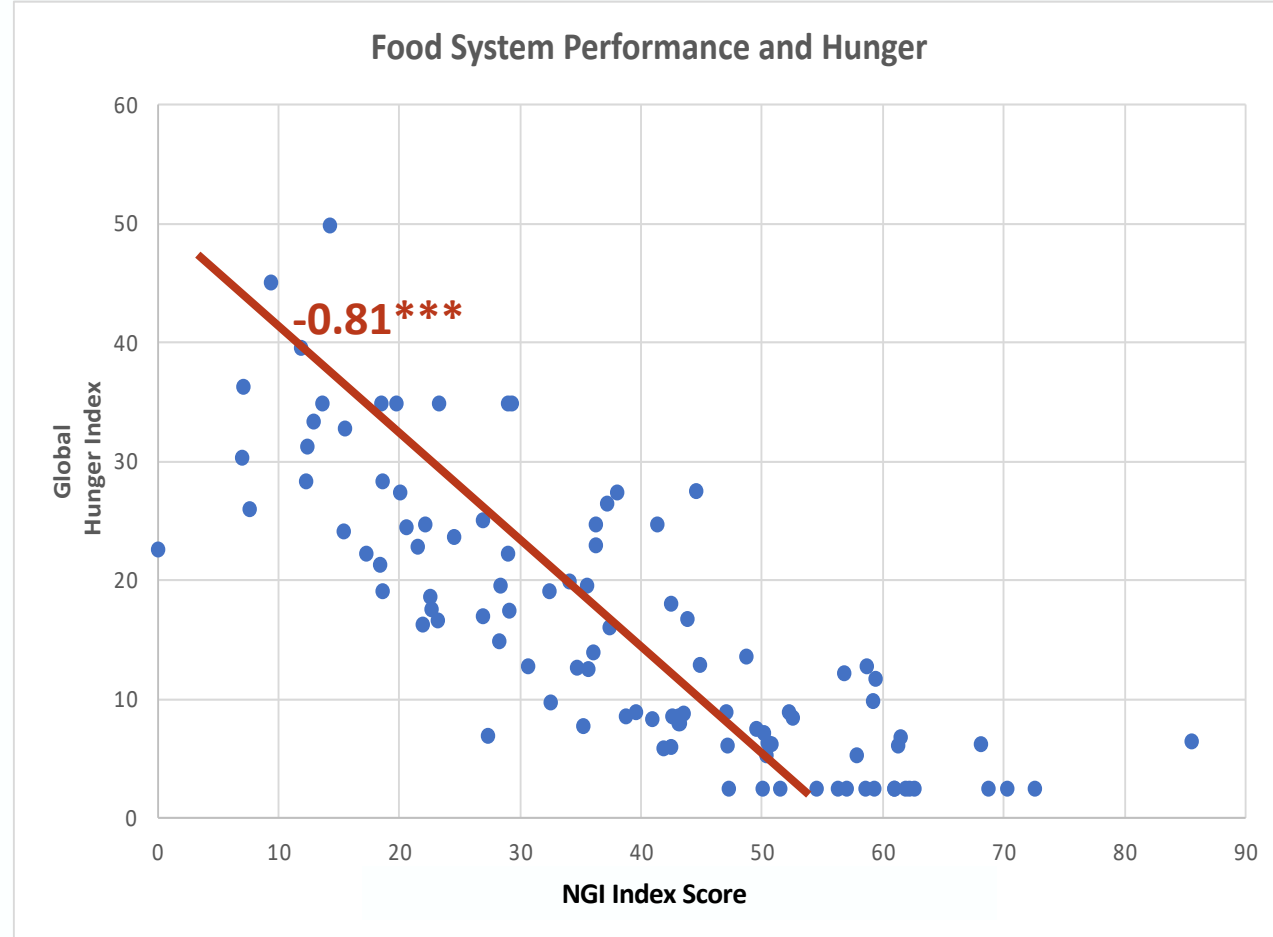


The greater the risk and instability, the lower the food system performance



*** indicates significance at 1 percent level

The higher the food system performance, the lower the level of hunger



*** indicates significance at 1 percent level

The almost equal index scores of LIC Rwanda, LMICs Kenya and Pakistan, and UMICs Ecuador and Bolivia confirm that food system performance is linked to much more than income, further affirming the value of further examination of these relationships

Rank	Country	Score
76	Philippines	36.9
77	Rwanda	35.9
78	Kenya	35.8
79	Ecuador	35.4
80	Pakistan	35.2
81	Bolivia	35.2
82	Egypt, Arab Rep	34.6
83	Iran, Islamic Rep	34.5
84	Guatemala	34.4
85	Tajikistan	33.5
86	Lebanon	31.4
87	Nepal	31.3

The NGI Food System Typology allows a unified examination of these relationships

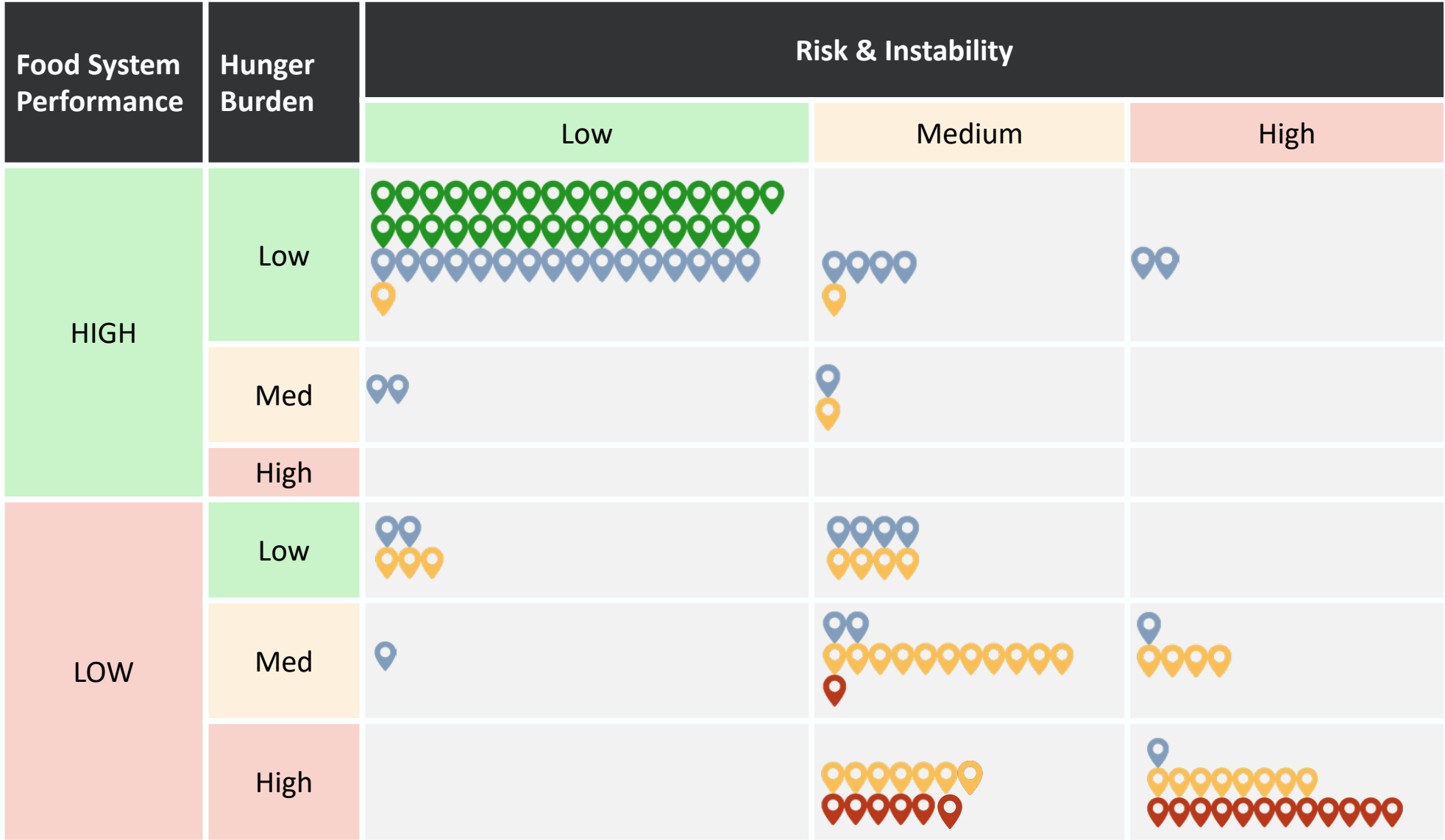
Phenomenon	Indicator Used	Level	Thresholds ^{1/}
Food system performance	NGI Index	High	> 2020 global mean
		Low	< 2020 global mean
Hunger	IFPRI Global Hunger Index	Low	≤ 9.9
		Medium	10 – 19.9
		High	>20
Risk and Instability	INFORM Risk Index	Low	≤ 3.4
		Medium	3.5-4.9
		High	Inform ≥5
Income	Per capita GNI (USD)	High	>12,535
		Upper Middle	4,046-12,535
		Lower Middle	1,026-4,045
		Low	≤ 1,035

1/ These thresholds for the global Hunger Index, the INFORM Risk Index, and per capita GNI are standard. The NGI Index threshold is as defined earlier, where the mean = 45.5



The resulting distribution of countries across the typology reveals important and compelling patterns

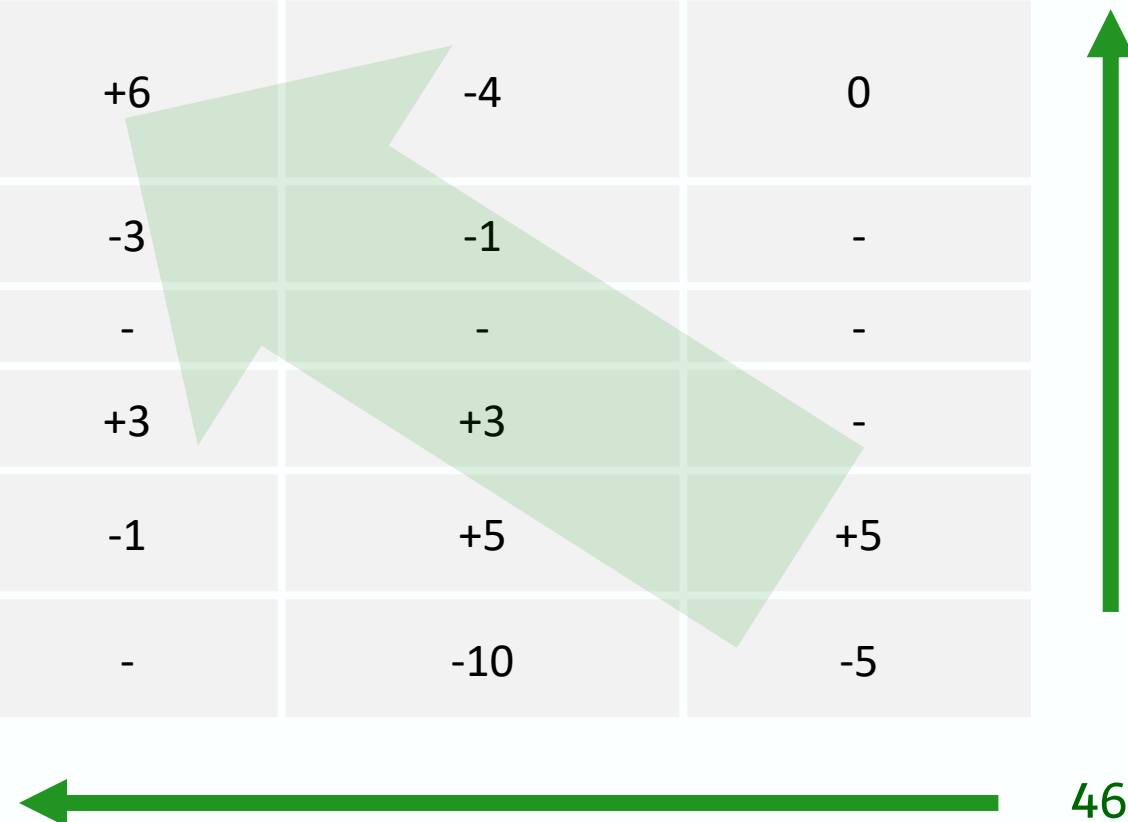
Higher income is necessary but not sufficient for higher food system performance – stability matters, especially for MICs



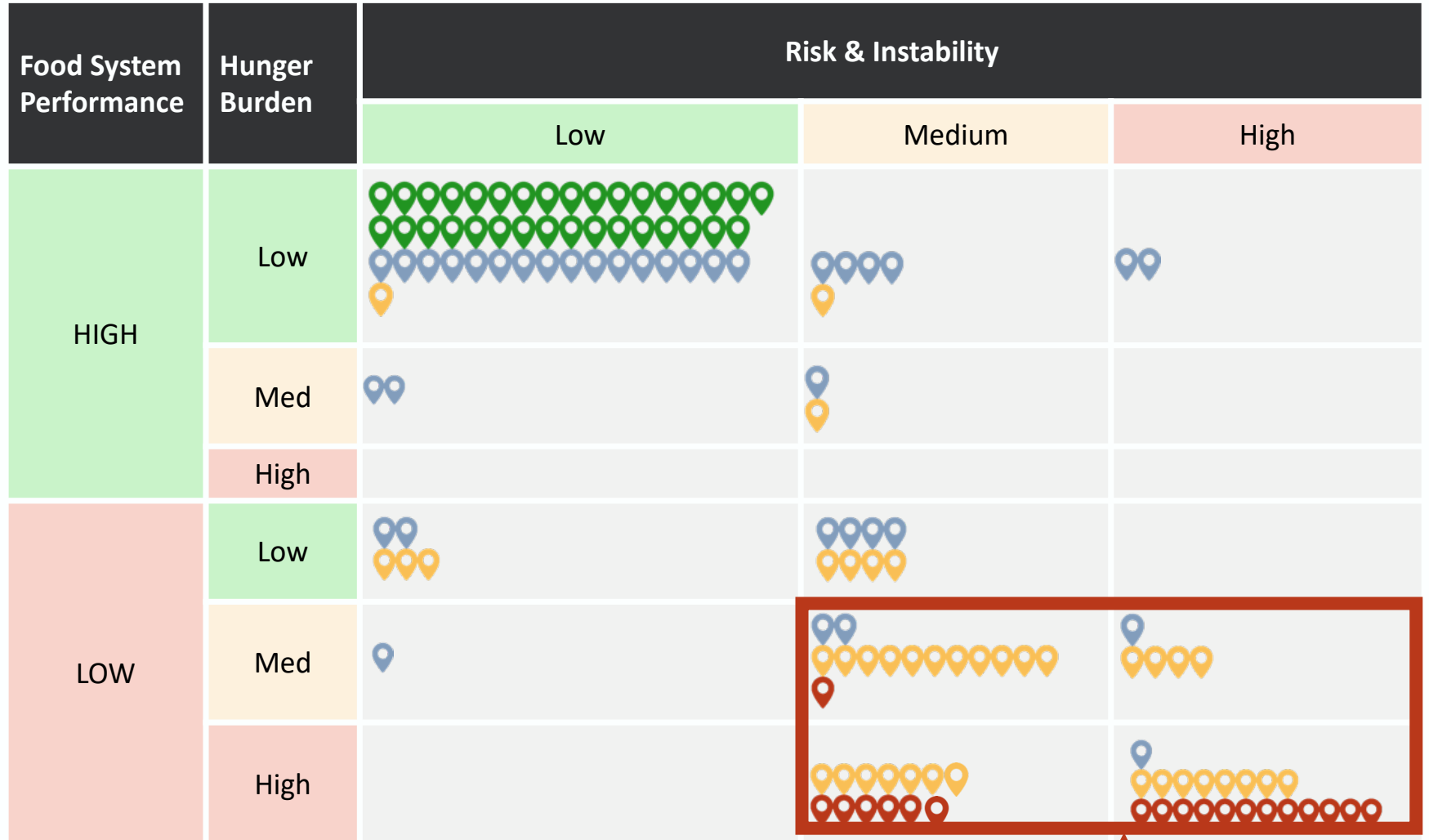
Between 2015 and 2020, not only did food system performance improve overall and in key regions and country groupings, fewer countries had high hunger burdens and high risk and instability



Changes in the distribution of countries across the typology between 2015 and 2020



Food system performance	Hunger burden	Risk & Instability		
		Low	Medium	High
HIGH	Low	+6	-4	0
	Med	-3	-1	-
	High	-	-	-
LOW	Low	+3	+3	-
	Med	-1	+5	+5
	High	-	-10	-5



The weight of hunger is very high in unstable lower-income countries with low-performing food systems



 High income country
 Upper-middle income country

 Lower-middle income country
 Low income country

There are almost 320 million chronically hungry people in these 53 countries



Humanitarian crises go hand in hand with low income, low food system performance, high hunger burdens, and high risk and instability



High income country
 Upper-middle income country

Lower-middle income country
 Low income country

All but 3 of these 21 countries are currently facing major humanitarian crises



There would appear to be no viable pathway toward high food system performance, low hunger, and high income without significant reductions in risk and instability

Food system performance	Hunger burden	Risk & Instability		
		Low	Medium	High
HIGH	Low	50	5	2
	Med	2	2	-
	High	-	-	-
LOW	Low	5	8	-
	Med	1	14	5
	High	-	13	21

These boxes are empty

The relationships among food system performance, income, risk and instability, and hunger are complex but logical

Food system performance and hunger

- No countries with high food system performance have high hunger burdens
- Very few countries with low food system performance have low hunger burdens (only 13)

Food system performance and stability

- Very few highly stable countries have low food system performance (only 6)
- Several moderately stable countries have low food system performance (34)
- Almost all highly unstable countries have low food system performance (24 of 26)

Food system performance and income

- No HICs have low-performing food systems
- Most UMICs have high-performing food systems
- Most LMICs have low-performing food systems
- All LICs to have low-performing food systems

Income and hunger

- No HICs have high levels of hunger
- Most UMICs have low to moderate hunger burdens
- Most LMICs have moderate to high hunger burdens
- Except for one country, all LICs have high hunger burdens

Risk/Stability and hunger

- No stable countries have high hunger burdens
- Several moderately stable countries have low hunger burdens (13)
- Almost all highly unstable countries have high hunger burdens (all but 7)



The Food System Performance Benchmarks

Benchmarks for assessing food system performance are based on indicator levels associated with low hunger as represented by a Global Hunger Index score of 9



Global Hunger Index Score

9

NGI Index Score

41.5

Production	Markets and Trade	Consumption	Governance and Institutions	Structural Conditions
Cereal Yield 2,772 kg/ha	Food Price Inflation 0.99 percent	Energy from Staples 51 percent	Ease of Doing Business Rank = 86	INFORM Risk Score = 3.7
	Road Density 3.12 km/1000 people	Population share below poverty line 1.13 percent		Per capita GNI US\$ 6,400
	LPI Score 2.57			



Putting the index, typology, and benchmarks to work in 6 country cases

Six country types with strong relevance for policy and strategy can be identified

Under-achieving UMICs

UMICs with low food system performance
10 countries

Over-achieving LMICs

LMICs with high food system performance
3 countries

Threatened LMICs

LMICs with low or very low food system performance, high hunger burdens and moderate/high risk and instability (some facing major humanitarian crises)
14 countries

Surging LICs

LICs with low food system performance and/or moderate hunger burdens
2 countries

Straining LICs

LICs with very low food system performance, high hunger burdens, and moderate/high risk and instability
5 countries

LICs in Crisis

LICs with very low food system performance, high hunger burdens, and high risk and instability (all but 1 facing major ongoing humanitarian crises)
8 countries



These are the countries in each country type

Country Type	# of countries	Countries
Under-achieving UMICs	10	Dominican Republic, Ecuador, Fiji, Iraq, Jamaica, Jordan, Lebanon, Guatemala, Peru,
Over-achieving LMICs	3	Mongolia, Ukraine, Vietnam
Threatened LMICs	14	Angola, Benin, Cote d'Ivoire, Djibouti, Haiti, India, Kenya, Lesotho, Mauritania, Nigeria, Pakistan, Tanzania, Zambia, Zimbabwe
Surging LICs	2	Gambia, Rwanda
Straining LICs	5	Guinea, Guinea-Bissau, Liberia, Malawi, Togo, Uganda
LICs in Crisis	8	Burkina Faso, Ethiopia, Mali, Mozambique, Niger, Sudan, Syria

The country cases are selected according to the typology

Under-achieving UMICs
UMICs with low food system performance
Ecuador

Over-achieving LMICs
LMICs with high food system performance
Vietnam

Threatened LMICs
LMICs with low or very low food system performance, high hunger burdens and moderate/high risk and instability (some facing major humanitarian crises)
Kenya

Surging LICs
LICs with low food system performance and/or moderate hunger burdens
Rwanda

Straining LICs
LICs with very low food system performance, high hunger burdens, and moderate/high risk and instability
Malawi

LICs in Crisis
LICs with very low food system performance, high hunger burdens, and high risk and instability (all but 1 facing major ongoing humanitarian crises)
Burkina Faso



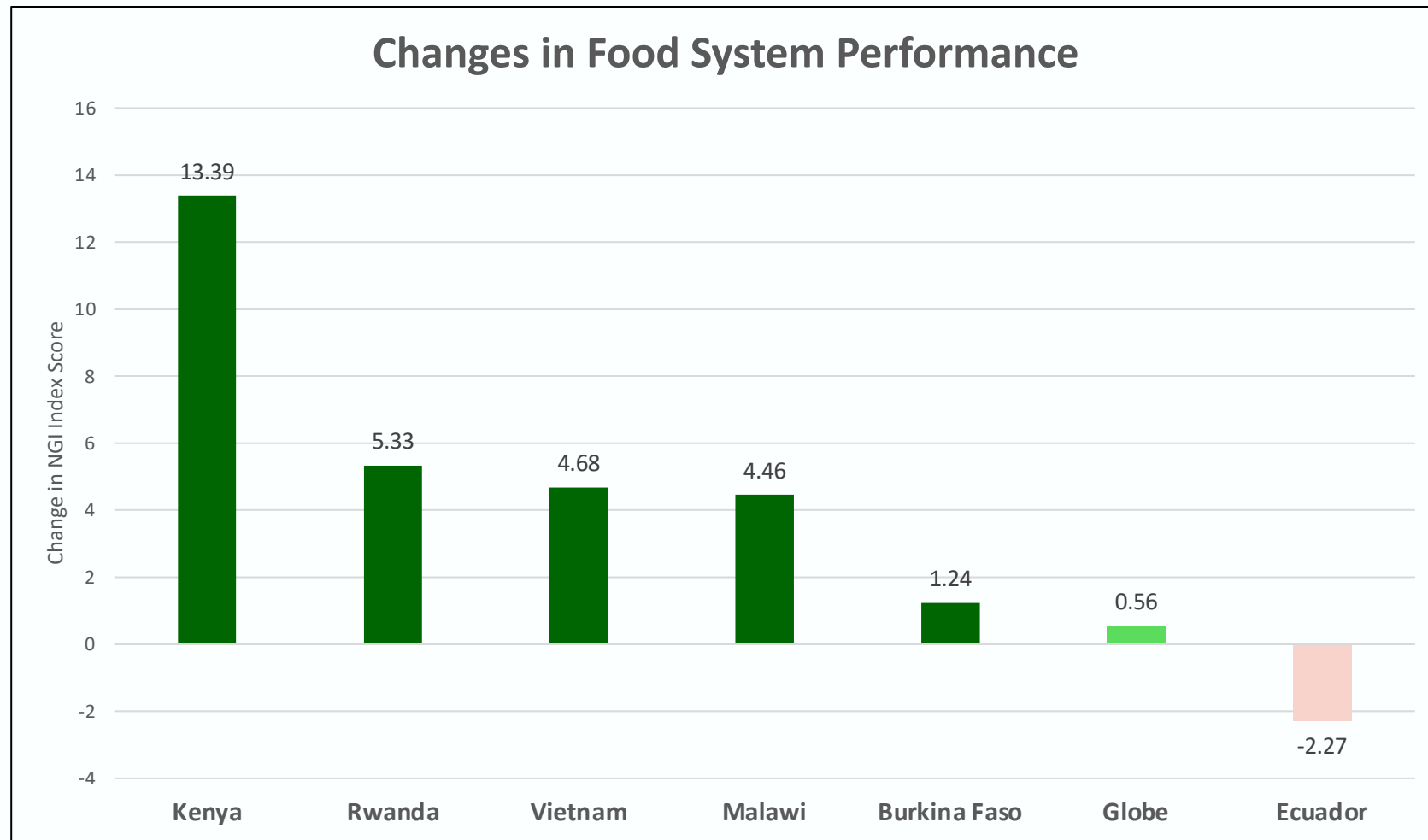
Of the six country cases, only Vietnam, an over-achieving LMIC, is located outside the segment of the typology in which hunger is heaviest and humanitarian crises are concentrated

Food System Performance	Hunger Burden	Risk & Instability		
		Low	Medium	High
HIGH	Low			
	Med			
	High		Vietnam (48.3)	
LOW	Low			
	Med		Ecuador (35.4)	
	High		Rwanda (35.9) Malawi (16.2)	Kenya (35.8) Burkina Faso (18.9)

HICs | UMICs | LMICs | LICs



Except for Ecuador, an under-achieving UMIC, food system performance rose by more than the global average in five of the six countries between 2015 and 2020



Each country registered significant improvements or deteriorations in different food system components and outcomes

Component/Outcome	Countries					
	Ecuador	Vietnam	Kenya	Rwanda	Malawi	Burkina Faso
	Under-achieving UMIC	Over-achieving LMIC	Threatened LMIC	Surging LIC	Straining LIC	LIC in Crisis
NGI Index						
Arable land						
Cereal yields	Deterioration	Improvement	Deterioration	Deterioration	Deterioration	Deterioration
Food price inflation	Improvement	Improvement	Improvement			
Road density						
Logistics and supply chain capacity						
Energy from starch staples						
Poverty rate		Improvement	Improvement	Improvement		Improvement
Business environment	Deterioration	Improvement	Improvement	Improvement	Improvement	
Hunger				Improvement	Improvement	Improvement

Key: Improvement Deterioration

Note: Changes occurred in all areas but only significant changes are included



Performance against the benchmarks was poor overall, even in countries that registered large overall gains between 2015 and 2020

Measure	Benchmark	Country Scorecards					
		Ecuador	Vietnam	Kenya	Rwanda	Malawi	Burkina Faso
		Under-achieving UMIC	Over-achieving LMIC	Threatened LMIC	Surging LIC	Straining LIC	LIC in Crisis
GHI	9	14	13.6	23	26.4	21.3	24.5
NGI Index	41.5	35.4	48.32	35.82	35.9	16.76	18.98
Cereal yield	2,772	3,936	5,685	1,810	1,428	1,531	1,108
Food price inflation	0.99	0.45	3.72	7.57	7.68	16	0.78
Road density	3.04	2.48	2	3.12	0.36	0.81	0.73
LPI score	2.57	2.88	3.26	2.81	2.97	2.59	2.62
Energy from staples	51	47	53	58	52	63	64
Pop below poverty line	1.13	3.58	1.35	31.25	48.97	67.55	32.83
Risk and instability	3.7	4	3.6	5.1	3.9	4.7	5.9
Ease of doing business	86	129	70	56	38	109	151
Income	6,127	10,032	7,742	4,267	2,052	1,540	2,190

Key:

Well above benchmark

Near benchmark

Well below benchmark



Looking across the six countries, several supply-side, demand-side, and governance related developments were evident

- **On the supply side**, and most prominently, productivity growth was sluggish or negative. In Ecuador, Rwanda, Malawi, and Burkina Faso, between 2015 and 2020 cereal yields fell by 9 percent, 2 percent, 4 percent, and 5 percent, respectively. In Kenya and Vietnam, they rose by just 2 percent and 1.5 percent, respectively. In all countries, climate shocks were devastating to production systems.
- **On the demand side**, while food price inflation in 2020 was well above benchmark levels for all but two countries (Ecuador and Burkina Faso), it was below the 2015 level in all countries except Rwanda. These lower levels of food price inflation, coupled with levels of infrastructure and supply chain capacity close to benchmark levels, were central to the overall improvements in food system performance between 2015 and 2020. In contrast, high levels of poverty had the opposite effect by dampening purchasing power and trade.
- **In governance systems**, risk and instability were fueled by several factors including corruption, tribalism, insecurity, legal and regulatory gaps linked to competition, and poor management of climate and economic shocks.



Strategic Priorities for Hunger-Reducing Food System Transformation

Strategic priorities are signaled by the relative magnitudes of the gaps to benchmark levels

Differences between country indicator levels and benchmarks

Measure	Benchmark	Gaps to Benchmark Levels					
		Ecuador	Vietnam	Kenya	Rwanda	Malawi	Burkina Faso
Cereal yield	2,772	+1,164	+2,913	-962	-1,344	-1,241	-1,664
Food price inflation	0.99	-0.54	+2.73	+6.58	+6.69	+15.01	-0.21
Road density	3.04	-0.56	-1.04	+0.08	-2.68	-2.23	-2.31
LPI score	2.57	+0.31	+0.69	+0.24	+0.4	+0.02	0.05
Energy from staples	51	-4	+2	+7	+1	+12	+13
Pop below poverty line	1.13	+2.45	+0.22	+30.12	+47.84	+66.42	+31.7
Risk and Instability	3.7	+0.3	-0.1	+1.4	+0.2	+1	+2.2
Ease of doing business	86	+43	-16	-30	-48	+23	+65

Four broad strategic priorities and associated actions emerge

Priorities	Required Actions
Risk and instability must be curtailed, including business risk	<ul style="list-style-type: none"> • Tackle corruption and tribalism • Strengthen laws and regulations governing competition • Enhance security • Boost climate resilience and disaster risk management
Production capacity must catch up with marketing and trade capacity	<ul style="list-style-type: none"> • Close the cereal yield gap <ul style="list-style-type: none"> • No less than 4 percent/year for the next 10 years (Kenya's requirement) • Prioritize climate resilience and climate smart innovation
Purchasing power and nutrition must be protected and boosted	<ul style="list-style-type: none"> • Limit food price inflation <ul style="list-style-type: none"> • No more than 4 percent/year on average (Vietnam's 2015-2020 level) • Promote and boost regional and international trade, especially during crises • Provide targeted conditional cash and in-kind transfers to vulnerable groups
Internal marketing and trade capacity must continue to be enhanced	<ul style="list-style-type: none"> • Leveraging the digital revolution, continue to improve transportation infrastructure, logistics and supply chain capacity

There are lessons and insights for countries at different income levels

- **While the “Surging LIC”** Rwanda is much smaller geographically and economically than the **“Straining LICs”** Malawi and **“LIC in Crisis”** Burkina Faso, its food system points to the powerful impact of low risk and instability and good governance on system performance. But all LICs must do much more to boost productivity, control food price inflation, enhance trade, and cut poverty.
- **Between the two LMICs**, the “Threatened LMIC” Kenya has much to take from the “Over-Achieving LMIC” Vietnam. Especially clear is the need for attention to badly lagging farm productivity. Equally important are reduced risk and instability and stronger progress in poverty reduction.
- For “Under-Achieving **UMIC**” Ecuador, also looking to Vietnam, higher farm productivity growth and lower corruption and insecurity are the primary hurdles.
- **Higher income is necessary but not sufficient for higher food system performance; stability matters, especially for MICs.** Effectively navigating the opportunities and risks associated with MIC status is vital to achieving higher food system performance and the higher income and lower hunger that accompany it.

Several implications for policy responses to the current food crisis are suggested

- 1. Control food price inflation**
 - Prudent use of macro policy instruments is critical to proper management of the fuel-fertilizer-food price crisis
- 2. Address the needs of vulnerable groups through targeted transfers leveraging existing safety nets**
 - Given the scale of needs, protecting nutritionally vulnerable groups is the key, and possibly only, viable transfer-based intervention
- 3. Engage the private sector in responses**
 - They run all facets of food systems and must therefore be provided with incentives to boost the trade and investment that yields sustained improvements in these systems, raising incomes and cutting hunger
- 4. Looking ahead**
 - Do not allow **productivity growth** to slip any further
 - Do not stop investing in **infrastructure and logistics capacity**



Conclusions

- This is not an econometric analysis; there is no suggestion of causality in any of the examined relationships.
- But the food system index rankings and the typology that links food system performance to broader development objectives and environments are highly informative of context-specific policy and investment priorities.
- The country cases show that a comparative, benchmark-based, target-driven perspective is useful, with clear strategic policy and investment priorities emerging.



Photo by Francisco Anzola

Further applications of the Index and Typology

The NGI Food System Index and Typology are novel analytical tools with strong potential to support strategy development, policy formulation, and investment planning for public, private and NGO agencies seeking to enhance the relevance and impact of food system strengthening and transformation initiatives.

The new tools also open valuable scope for enhanced monitoring of food system performance in different contexts, highlighting the fundamentals that must be in place for food systems to play their roles in hunger reduction, income generation, and stability.

For tailored analysis, briefings and reports, contact New Growth International at ngi-index@newgrowthint.com



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