

COUNTRIES VULNERABLE TO A PRICE SPIKE IN 2011

If there were a price spike of cereals on international markets in 2011, which countries would be most at risk of increased hunger? This note assesses those countries that are especially vulnerable to such a spike.

Three criteria were used:

Hunger: the country has to have high current levels of hunger. Only those countries where 15% or more of the population are classified as hungry, using the Hunger Index reported by IFPRI, are considered.

Cereals make up most of the staples consumed. Countries where roots and tubers are important, making up 40% or more of staples consumed, are omitted from the list.

This is a fine judgment: if cereals prices rise, it is likely that some consumers will switch to roots, tubers and plantains, thus pushing up their prices as well. This effect will be moderated by those who are simply unwilling to change their diet; and by a higher short-term elasticity of supply of some tubers to price since some can be dug up earlier than planned.¹

Dependence on imported cereals. Those countries that typically import 40% or more of the cereals they consume are classed as 'Highly Exposed' to a price spike, those where it is less than 40%, but more than 25% are classed as 'Exposed'.

¹ Cassava, for example, can be harvested between 6 and 24 months after planting. It has thus been promoted as famine crop, since it can be grown, left in the ground and harvested when needed.

The countries that fulfil these criteria are, in order of their hunger rates:

Highly exposed	Exposed
Eritrea	Sierra Leone
Afghanistan	Mozambique
Haïti	Togo
Comoros	Sudan
Yemen	Kenya
Somalia	Guinea
Timor-Leste	
Liberia	
Djibouti	
Guinea-Bissau	
DPR Korea	
Gambia	
Senegal	
Tajikistan	
Sri Lanka	

Most of these countries are seen as fragile states,² many recovering from conflict. The four exceptions are The Gambia, Kenya, Mozambique, and Senegal.

It is also striking how these countries cluster geographically, see the map. Three clusters appear: south Central Asia; the Horn and Eastern Africa; and the western coast of West Africa.

What may happen to the prices of staples in countries that do not depend heavily on imports, or which export cereals?

Any country that imports a good fraction of its cereals is seriously exposed to high food prices: but countries that are reasonably well integrated into world markets would also be vulnerable, since domestic prices should rise to world market parity levels through exports when the world price is sufficiently high.

In practice, there are two limits to this:

- a) When transport costs are high, there can be a large band within which local prices rule. That said, if the world price spike is big enough, this raises the export parity price to levels that may overcome transport costs. In Malawi, for example, with say US\$100 a tonne cost to reach the world market, then typical export parity lies well below the domestic price of around US\$100 for unmilled maize. But raise the world price to, say US\$250 a tonne, and it looks as though maize exports would offer better returns than domestic sale.
- b) Political limits. There are plenty of countries where recent experience shows that governments will not allow exports unless they have a considerable domestic surplus. This

² They appear on the 2010/11 list of fragile situations compiled by the World Bank — see http://siteresources.worldbank.org/EXTLICUS/Resources/511777-1269623894864/Fragile_Situations_List_FY11_%28Oct_19_2010%29.pdf

is a severe limit to international prices dragging up domestic prices. Local farmers lose from this, but governments are more concerned about the impacts on consumers.

Widening the criteria to include countries where there is realistic threat that a price spike would see significant local exports, thereby raising domestic prices adds a few more candidates to the list.³ Though it is difficult to imagine their governments would allow exports if they were seeing rapidly rising local prices, the ability to stop people moving things over their (long) borders or on to small boats is limited. Therefore a few candidates can be added to the list of exposed countries: **Cambodia, Madagascar and Tanzania.**

What happens if relatively large countries were to suffer harvest failure at the same time as a price spike?

Amongst the 48 countries with hunger indices of 15% or more, there are some 16 countries that do not depend much on cereals exports and hence in this memo are not seen as exposed to high risk. Were, however, their harvests to fail, they would be. In some cases they are also relatively large countries and their import needs would significantly raise demand on the international markets and exacerbate any price spike.

Countries in this category include: **Bangladesh, Ethiopia and Pakistan** — shaded in yellow on the map. The development of their crops in 2011 should be monitored.

Does it make a difference which cereals are consumed?

It may. Rice stocks are higher than those for maize and wheat, so that price spikes are more likely in the latter crops than in rice.

That said, during 2007/08 rising prices in wheat and maize — prices that rose earlier than the rice price — were one reason that countries such as India severely restricted rice exports, expecting that higher prices for wheat would lead to higher domestic demand for rice. Once this happened, panic gripped the rice market as other exporters followed suit and some wealthy importing nations tried to buy in more rice, fearing absolute shortages. Hence it would be unwise to imagine that spikes in maize and wheat would not affect the rice market.

³Most of the other countries not classed as exposed, would be less likely to suffer contagion, since (a) they are landlocked and it is not that easy to ship out food — e.g. Chad, Zambia; (b) their governments would never allow this — e.g. India, Bangladesh, Malawi; or (c) roots and tubers are important, so that higher cereals prices would probably not hit the poor that hard -- although rising cereals prices would tend to transmit to the roots and tubers as well, as people switched consumption. For some countries, more than one of these factors applies.

MAP OF VULNERABLE COUNTRIES

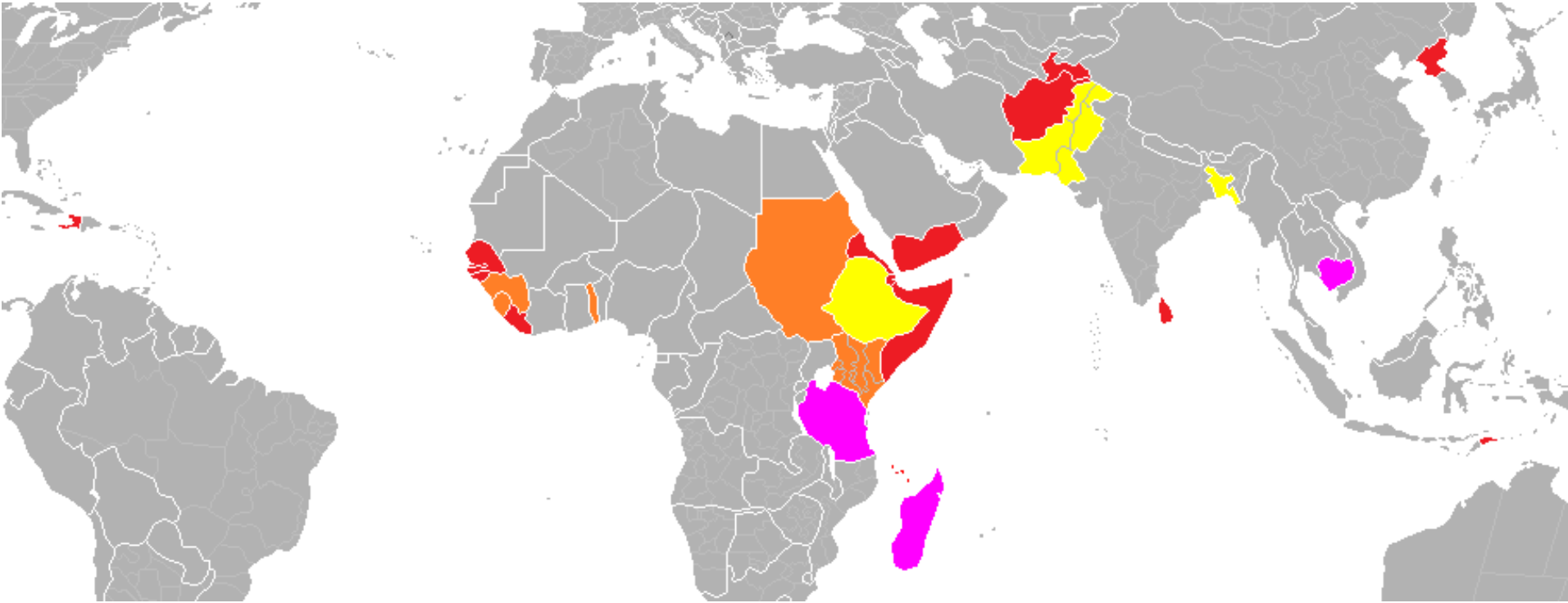


Table: Statistics used to assess country vulnerability to a price spike

SORTED BY HUNGER INDEX	Poverty & Hunger			Cereal dependency			Local harvest variability risk	Colour coding on map	REMARKS
	WB income classifi- cation Sep 2010*	IFPRI HUNGER INDEX **	POVERTY HEADCOUNT (%) BELOW NATIONAL POV LINE ***	CEREALS SHARE in TOTAL KCAL Consumed (average 2005 - 2007) %	CEREALS share in STAPLE FOODS (cereals, roots & tubers, plantain) 2007 %	CEREAL NET IMPORT SHARE IN CEREALS SUPPLIED (AVERAGE 2002 – 2007) **** %	Cereal PROD'N VARIABILITY 1998-2007 (%)*****		
Congo, DR	LM	41	71	23	28	29	17		Cereals less important than roots & tubers
Burundi	L	38	68	19	37	25	3		Cereals less important than roots & tubers
Eritrea	L	36	53	74	96	67	52		HIGHLY EXPOSED to Pwm
Chad	L	31	43	57	89	7	12		Vulnerable to domestic harvest failure
Ethiopia	L	30	44	66	83	8	8		Vulnerable to domestic harvest failure
Afghanistan	L	29	42			> 50	22		HIGHLY EXPOSED to Pwm
Sierra Leone	L	29	70	50	82	30	16		EXPOSED to Pwm
Haiti	L	28	65	46	81	67	10		HIGHLY EXPOSED to Pwm
Comoros	L	28		38	73	79	3		HIGHLY EXPOSED to Pwm
Madagascar	L	28	69	59	76	14	10		EXPOSED if there significant exports
CAR	L	27		25	46	17	3		Cereals less important than roots & tubers
Yemen, Rep. of	LM	27	42	61	98	88	23		HIGHLY EXPOSED to Pwm
Angola	LM	27		36	57	52	12		Cereals less important than roots & tubers Oil revenues mean that the country should be able import without distress.
Somalia	L	26				>50	20		HIGHLY EXPOSED to Pwm
Niger	L	26	63	60	98	12	12		Vulnerable to domestic harvest failure
Timor-Leste	LM	26	40	60	83	35	16		HIGHLY EXPOSED to Pwm

Zambia	L	25	68	61	81	7	20		Vulnerable to domestic harvest failure
Liberia	L	24		43	65	82	31		HIGHLY EXPOSED to Pwm
Bangladesh	L	24	40	78	97	12	5		Vulnerable to domestic harvest failure
India	LM	24	29	60	97	-4	5		Low vulnerability: high domestic stock
Mozambique	L	24	55	40	54	42	12		EXPOSED to Pwm Qualification: many of rural poor in Centre and North have access to roots & tubers
Djibouti	LM	24		52	98	152	6		HIGHLY EXPOSED to Pwm
Rwanda	L	23	57	18	25	20	12		Vulnerable to domestic harvest failure
Guinea-Bissau	L	23	66	59	84	41	14		HIGHLY EXPOSED to Pwm
Togo	L	22	32	49	66	21	4		EXPOSED to Pwm
Burkina Faso	L	21	46	73	99	7	11		Vulnerable to domestic harvest failure
Zimbabwe	L	21	35	56	96	28	29		Vulnerable to domestic harvest failure
Cambodia	L	21	30	72	95	1	11		Vulnerable to domestic harvest failure. EXPOSED if significant exports
Sudan	LM	21		50	98	32	19		EXPOSED to Pwm
Tanzania	L	21	36	46	72	15	15		Vulnerable to domestic harvest failure. EXPOSED if significant exports
Nepal	L	20	31	69	94	3	3		Vulnerable to domestic harvest failure
Kenya	L	20	47	49	87	22	12		EXPOSED to Pwm
DPR Korea	L	19		62	90	41	9		HIGHLY EXPOSED to Pwm
Mali	L	19	64	67	94	12	15		Vulnerable to domestic harvest failure
Pakistan	LM	19	33	47	97	-14	5		Vulnerable to domestic harvest failure [Significant net exports grains]

Lao P.D.R.	L	19	34	70	95	-1	6		Vulnerable to domestic harvest failure
Myanmar	L	19	32	59	97	-4	6		Vulnerable to domestic harvest failure
Gambia, The	L	19	61	56	98	63	21		HIGHLY EXPOSED to Pwm
Malawi	L	18	52	59	77	6	26		Vulnerable to domestic harvest failure
Nigeria	LM	18	34	45	69	25	6		Roots & Tubers equally important for staple
Cameroon	LM	18	40	42	67	36	5		Roots & Tubers equally important for staple
Guinea	L	17	40	47	73	32	6		EXPOSED to Pwm
Benin	L	17	39	40	57	29	9		Roots & Tubers equally important for staple
Senegal	LM	17	33	60	95	69	29		HIGHLY EXPOSED to Pwm
Tajikistan	L	16	54	63	96	55	13		HIGHLY EXPOSED to Pwm
Congo, Rep.	L	15	42	26	43	90	1		Cereals less important than roots & tubers
Uganda	L	15	31	23	37	20	4		Cereals less important than roots & tubers
Sri Lanka	LM	15	23	56	93	41	8		HIGHLY EXPOSED to Pwm
Countries with hunger indices below 15%									
Côte d'Ivoire	LM	14		33	46	64	5		
Namibia	UM	14		46	76	47	14		
Indonesia	LM	13	17	63	91	18	4		
Mauritania	L	13	46	51	99	69	21		
Philippines	LM	13	25	57	95	33	4		
Mongolia	LM	13	36	46	92	79	44		
Botswana	UM	13		43	88	76	23		
Papua New G.	LM	12	38				9		
Lesotho	LM	12	56	78	96	46	20		
Guatemala	LM	12	51	51	98	71	4		
Vietnam	LM	12	29	66	98	-18	2		

Bolivia	LM	11	38	47	82	37	8		
Swaziland	LM	11	69	50	91	110	20		
Bhutan	LM	10					19		
Ghana	L	10	29	29	39	38	11		
Nicaragua	LM	10	46	50	97	35	15		
Armenia	LM	10	51	44	91	106	22		
Dominican Rep.	UM	9	49	29	81	198	10		
Thailand	LM	9	14	49	96	-89	2		
Honduras	LM	8	51	44	93	62	9		
Panama	UM	8	37	43	91	110	11		
Azerbaijan	UM	8	50	60	91	57	17		
Guyana	LM	8	35	46	92	-129	9		
South Africa	UM	7	22	54	96	43	17		
Ecuador	LM	7	38	34	88	70	12		
Uzbekistan	LM	7	27	57	96	11	9		
Peru	UM	7	52	44	71	83	7		
Mauritius	UM	7	11	46	97	128	40		
Gabon	UM	6		33	55	80	6		
Turkmenistan	LM	6		61	96	5	15		
Venezuela, R.B. de	UM	6	52	37	90	54	9		
China	LM	6	3	50	91	0	6		
El Salvador	LM	6	31	44	91	97	6		
Paraguay	LM	6	21	29	68	-241	16		
Georgia	LM	6	55	50	94	110	22		
Morocco	LM	6	19	60	96	57	40		
Iraq	LM	6					32		
Colombia	UM	6	45	34	75	91	10		
Suriname	UM	6		42	92	23	6		
Syrian Arab	LM	5		45	97	27	26		

Republic									
Albania	UM	4	19	40	94	96	9		
Egypt, Arab Rep.	LM	4	17	64	97	48	4		
Montenegro	UM	4					0		
Iran	UM	4		53	94	36	18		
Serbia	UM	4					0		
Bulgaria	UM	4	13	37	95	-105	23		
Moldova	LM	4	49	48	92	-22	27		
Brazil	UM	3	22	32	87	13	11		
Jamaica	UM	3	19	32	85	182	9		
Algeria	UM	3	23	56	95	103	36		
Malaysia	UM	3	16	47	95	142	3		
Kyrgyz Republic	L	3	43	48	88	32	8		
Uruguay	UM	3		43	92	-104	19		
Libya	UM	3		47	94	183	3		
Fiji	UM	3		41	86	97	16		
Mexico	UM	3	47	44	98	72	5		
Kazakhstan	UM	3	15	43	88	-193	20		
Jordan	LM	3	14	46	98	231	41		
Lebanon	UM	3		34	82	160	12		
Macedonia, FYR	UM	2	22	34		57	13		
Turkey	UM	2	27	48	95	2	7		
Tunisia	LM	2	8	50	96	128	32		
Costa Rica	UM	2	24	31	91	190	16		
Bosnia & Herzegovina	UM	2	20	45	91	88	16		
Cuba	UM	2		40	81	116	14		
Russian Federation	UM	2	20	36	83	-46	14		
Argentina	UM	2		31	90	-460	12		

Belarus	UM	2	17	30	72	54	10		
Ukraine	LM	1	20	36	82	-105	24		
Romania	UM	1	29	39	88	8	27		
Chile	UM	1	17	40	92	87	15		
Lithuania	UM	1		33	87	-101	15		
Kosovo	LM		45						
Antigua & Barbuda	UM			26	92	104	3		
Belize	LM			39	96	61	13		
Cape Verde	LM			45	92	144	67		
Dominica	UM			25	71	109	3		
Grenada	UM			22	86	156	2		
Kiribati	LM			30	76	115			
Maldives	LM			35	95	118	48		
OPT	LM			51	97	102	27		
St Kitts and Nevis	UM			26	92	110			
St. Lucia	UM			28	92	108			
St. Vincent & the Grenadines	UM			33	82	89	51		
Samoa	LM			18	66	111			
Sao Tome & Principe	LM			33	68	74	13		
Seychelles	UM			41	95	191			
Solomon Islands	L			34	51	80	30		
Vanuatu	LM			31	62	97	3		

Source: Constructed with data from FAOSTAT, World Bank Statistics, and IFPRI **Notes:** REMARKS are cut off after the 2010 IFPRI Hunger Index drops below 15%. *L = Low income countries, LM = Lower middle income countries, UM = Upper middle income countries [By World Bank definition, Sept 2010 list]. **This is an index of FAO undernourishment, child mortality and under five underweight statistics, with minor adjustments: Figures <5 calculated. Also, where any of the three components are missing, averages are calculated on what exists.***Latest year available. ****Numbers greater than 100% or negative numbers likely owe to disparities in food supply measures and measures of food products imported and exported for perhaps other purposes (processing, animal feed etc). ***** Cuddy–Della Valle Index, after World Bank 2005 pp9 <http://siteresources.worldbank.org/INTARD/Resources/ManagingFoodPriceRisks.pdf>