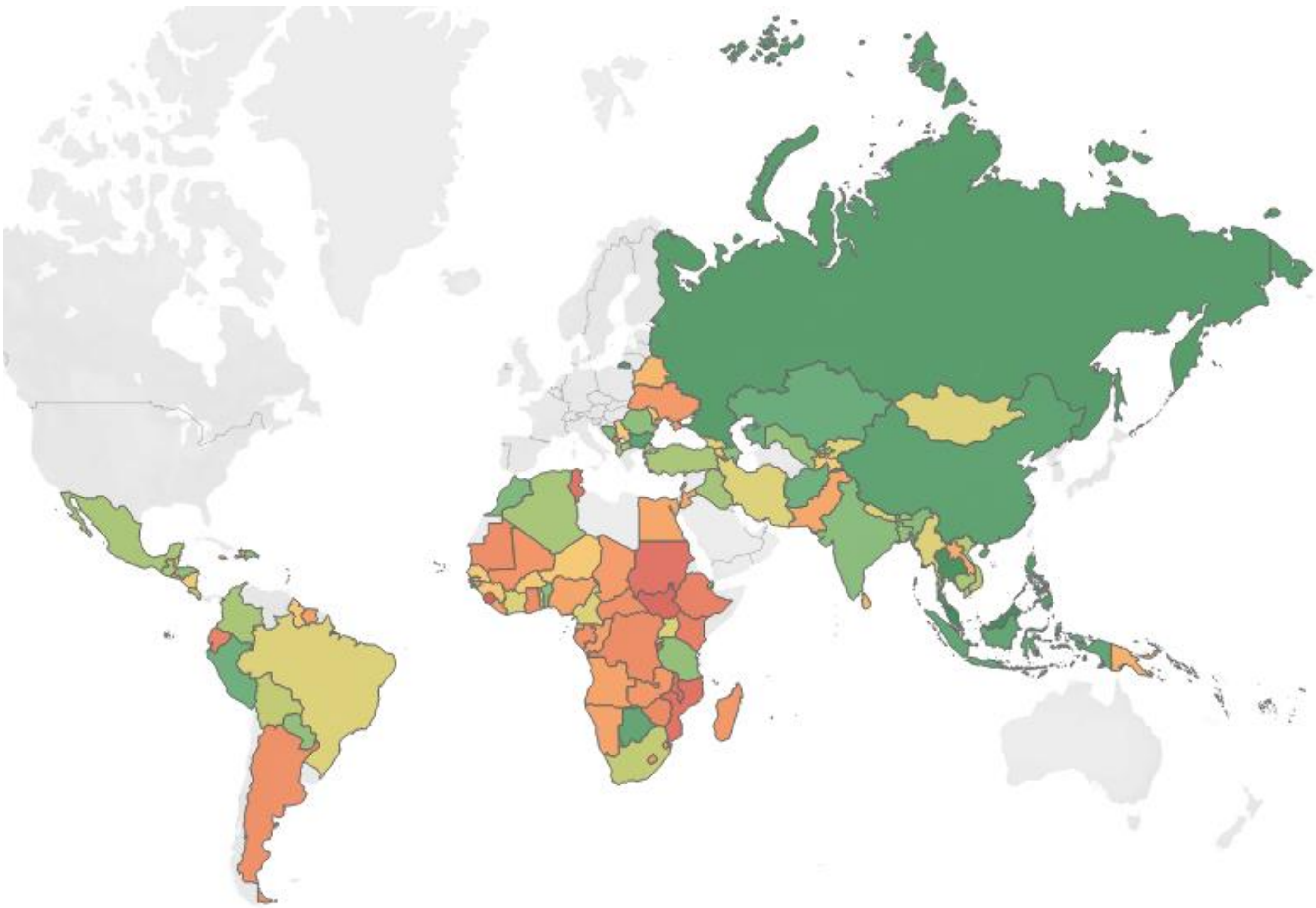
COVID-19
MACROECONOMIC RESILIENCE

May 2020

Fiscal Accountability and Sustainable Trade (FAST)



Macroeconomic resilience in low- and middle-income countries

May 2020

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COVID-19

Macroeconomic Resilience

Fiscal Accountability and Sustainable Trade (FAST)

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COR:	Theresa Stattel
ACOR:	Anton Kamenov
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Contents

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Acronyms

GDP	Gross Domestic Product
IFS	International Finance Statistics
IMF	International Monetary Fund
M2	Broad money includes cash, checking deposits, and easily convertible near money
REER	Real effective exchange rate
USAID	United States Agency for International Development
WB	The World Bank
WDI	World Development Indicators
WEO	World Economic Outlook
WoRLD	World Revenue Longitudinal Data

COVID-19

Macroeconomic Resilience Report

USAID FAST

May 2020

Introduction

This report is an update and expansion of the article "The Macroeconomic Resilience of Nations" by Gallagher and Ortiz 2013. Gallagher and Ortiz developed a practical tool for measuring the macroeconomic resilience of nations. The tool helped the United States Agency for International Development (USAID) determine which countries needed additional assistance during the financial crisis in 2009. With the COVID-19 crisis looming over the globe, this tool becomes once again of significant importance. With this in mind, USAID called on the Fiscal Accountability and Sustainable Trade (FAST) mechanism to update and expand the tool and with this assess the potential need for extraordinary assistance to the developing countries that are shown to be less resilient in the monetary and fiscal spheres.

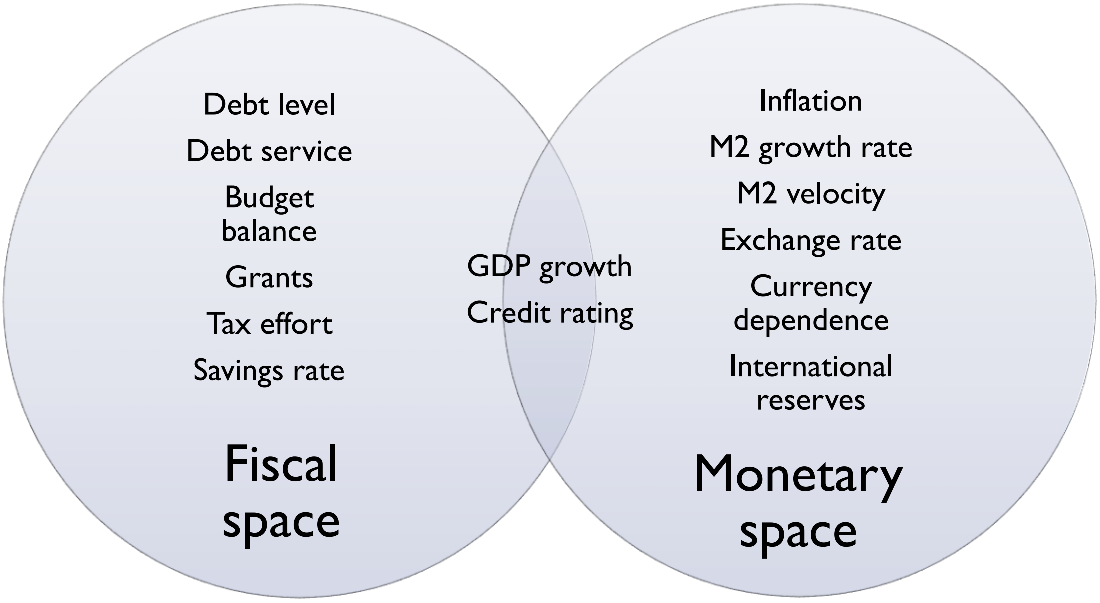
Following Gallagher and Heredia, FAST assessed the macroeconomic resilience of most developing countries by measuring their degree of fiscal and monetary space as an indicator of their ability to respond to shocks, such as COVID-19, and implement fiscal and monetary policies to neutralize or ameliorate them. For instance, a country with limited fiscal and monetary space would be constrained to implement a large-scale financing program for firms to weather the crisis, or to delay tax collections or implement tax financing programs.

For this report we use the common definition of fiscal space as "room in a government´s budget that allows it to provide resources for a desired purpose without jeopardizing the sustainability of its financial position or the stability of the economy" (Heller, 2005). Monetary space is defined as "the ability of a financial system to implement expansionary monetary policy to accommodate expansionary fiscal policy or to substitute for it, without creating extraordinary problems of inflation, surges in real interest rates , or disequilibria in international payments" (Gallagher et alia, 2013).

A Framework for Assessment

FAST replicated the work of Gallagher and Ortiz for assessing the economic resilience of nations. The tool is based on indicators that determine fiscal and monetary space, as shown in Figure 1. As Gallagher and Heredia pointed out, while many of these indicators are widely known economic and fiscal indicators, on their own they have little meaning. Bringing them together frames the analysis of a system's fiscal and monetary space and thereby its degree of resilience. FAST slightly adjusted the indicators by incorporating the credit rating as a measure of both fiscal and monetary space, and by reassigning gross domestic product (GDP) growth to be an indicator of both spaces.

Figure 1: Determinants of fiscal and monetary space



FAST collected data for the 133 low- and middle-income countries and compared these in a visual framework using a traffic light approach—red, yellow, and green—reflecting the degree of space. Red is problematic, green favorable, and yellow neither. Colors are assigned according to how each country compares to other counties in the sample. The general guidelines to assign colors is: if the country places in the top third performers of all countries with available data, this country/indicator is assigned green. If the country is placed in the bottom third of the distribution, it is assigned red. If the country is in the second third, it is assigned yellow. The bottom/top is determined depending on the nature of the variable. For example, we expect that having a lower level of debt is more favorable or represents more space, and, a country with more reserves can be considered more resilient. There are a few exceptions to this rule, for example, we do not consider deflation to be favorable for resilience, so countries with deflation were removed from weighting and scoring. Additional details about variable definitions, sources, and cutoffs for assigning colors are detailed in section "determinants of fiscal space" below.

The last column of the table contains a relative resilience score, countries are sorted from highest to lowest score. This score is calculated by assigning points to each indicator/color. An indicator in green is worth 2 points, in yellow one, and red zero.[1] The country with the highest average score is assigned 100%, and the score of other countries is its point-average over the maximum. If a country has more than five missing observations it is not scored.

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[1] Except "currency dependence" as it is a binary variable; green if one, and red if zero.

Chart 1. Macroeconomic resiliency map

Country	Resilience (score)	Public debt (% of GDP)	Debt service (% of Tax Rev)	Budget balance (% of GDP)	Grants (% of GDP)	Tax effort (min=0, max=1)	Gross savings (% of GDP)	Inflation (%)	M2 growth (%)	M2 velocity (ratio)	REER (2007=100)	Curr. dep. (1 = dep)	Int. reserves (months of imports)	GDP growth (%)	Credit rating (level)
Malaysia	100%	55.6		-3.3	0%	0.4	25.7	1.0	8%	0.8	95.9	0	4.9	4.7	A-
Thailand	97%	42.1	1.1%	0.1	0%	0.5	31.4	1.1	5%	0.8	122.0	0	7.8	4.1	BBB+
Philippines	93%	38.9	10.9%	-1.6	0%	0.4	24.3	5.2	9%	1.3	120.3	0	6.9	6.2	BBB
Russia	93%	14.6	7.1%	2.9			29.6	2.9	12%	1.7	94.2	0	12.9	2.3	BBB-
Bulgaria	90%	20.4	13.1%	0.1		0.6	25.3	2.6	9%	1.2	106.1	0	7.9	3.1	BBB
China	90%	50.6	0.8%	-4.7	0%	0.5	45.2	2.1	4%		135.7	0	13.4	6.6	A+
Botswana	88%	12.1	4.3%	-4.6	0%	0.6	33.2	3.2	8%	2.4	115.2	0	9.0	4.5	BBB+
Indonesia	88%	30.1	16.3%	-1.8	0%	0.3	31.4	3.2	6%	2.6	106.8	0	5.7	5.2	BBB
Kazakhstan	86%	21.0	7.4%	2.6	0%		24.7	6.0	7%	2.9	77.1	0	5.2	4.1	BBB-
Afghanistan	84%	6.9	3.2%	1.5	19%	0.3	26.1	0.6	3%	2.9	105.9	0	12.2	2.7	NR
Peru	84%	26.2	15.7%	-2.0	0%	0.4	19.9	1.3	5%	2.1	123.9	0	11.1	4.0	BBB+
Bosnia and Herzegovina	80%	34.3	14.8%	1.7	2%	0.6	16.8	1.4	9%	1.4	93.2	0	6.7	3.6	B-
Morocco	80%	65.0	13.5%	-3.7	1%	0.6	28.0	1.9	4%	0.8	100.4	0	5.0	3.0	BB+
India	77%	68.1	3.0%	-6.3	0%	0.6	29.2	3.4			124.9	0	6.9	6.8	BBB-
Azerbaijan	76%	18.8	28.6%	5.5	0%		31.8	2.3	6%	3.3	97.4	0	3.7	1.0	BB-
Benin	76%	41.0	6.2%	-3.0	4%	0.4	20.3	0.8	5%	3.6	94.9	1		6.7	B
Romania	76%	36.7	10.3%	-2.8		0.4	19.6	4.6	9%	2.5	87.1	0	4.3	4.1	BBB-
Bangladesh	75%	34.0	6.5%	-4.6	1%	0.3	28.4	5.6	12%	1.7	167.1	0	5.7	7.9	BB-
Cabo Verde	75%	124.5	13.8%	-2.8	4%	0.5	32.1	1.3	1%	1.0	101.9	0	5.1	5.1	B-
Dominican Republic	75%	50.5	13.7%	-2.2	0%	0.4	24.4	3.6	7%	3.0	91.4	0	3.3	7.0	BB-
Honduras	75%	40.2	9.9%	0.2	3%	0.6	21.3	4.3	7%	1.7	120.5	0	4.2	3.7	B+

Country	Resilience (score)	Public debt (% of GDP)	Debt service (% of Tax Rev)	Budget balance (% of GDP)	Grants (% of GDP)	Tax effort (min=0, max=1)	Gross savings (% of GDP)	Inflation (%)	M2 growth (%)	M2 velocity (ratio)	REER (2007=100)	Curr. dep. (1 = dep)	Int. reserves (months of imports)	GDP growth (%)	Credit rating (level)
Paraguay	75%	21.5	8.3%	-1.7	0%	0.3	22.5	4.0	8%	2.4	137.9	0	6.0	3.7	BB
Tanzania	75%	37.3	8.5%	-1.9	4%	0.5	30.7	3.5	4%	5.0	127.6	0	5.6	7.0	B+
Uzbekistan	75%	20.6	4.4%	2.1	1%	0.7	30.5	17.5	13%	5.1	53.7	0	12.9	5.1	B+
Iraq	72%	49.3		7.9	1%		19.8	0.4	3%	2.8	124.9	0	13.0	-0.6	CCC+
Algeria	71%	38.3	0.4%	-4.5	0%		39.8	4.3	11%	1.2	101.1	0	19.4	1.4	NR
Albania	71%	69.9	12.0%	-1.3	2%	0.6	17.4	2.0	0%	1.3	111.3	0	6.4	4.1	B+
Bhutan	71%	102.4	25.8%	-3.3	4%	0.4	45.5	3.5	7%	1.4	106.2	0	7.8	4.6	NR
Cambodia	71%	28.6	6.2%	0.7	3%	0.6	12.4	2.4	27%	1.0	146.9	0	7.0	7.5	B
Colombia	71%	52.2	18.7%	-4.7	1%	0.6	17.3	3.2	5%	2.1	91.4	0	7.1	2.6	BBB-
Djibouti	71%	48.0	12.9%	-2.8	6%	0.5	18.0	0.1	-6%	1.5	130.3	0	6.4	5.5	NR
Guatemala	71%	24.7	10.5%	-1.9	1%	0.3	12.9	3.8	10%	2.0	149.2	0	6.3	3.1	BB-
Mexico	71%	53.6	22.2%	-2.2	0%	0.4	21.2	4.9	5%	2.6	79.0	0	3.9	2.0	BBB-
North Macedonia	71%	40.5	18.2%	-1.8	1%	0.5	32.7	1.5	11%	1.8	99.7	0	4.0	2.7	BB-
Turkey	71%	30.2	10.8%	-3.7	0%	0.5	27.1	16.3	18%	1.9	67.3	0	4.3	2.8	B+
Rwanda	67%	40.7	5.3%	-2.6	12%	0.5	12.9	1.4			100.2	0	4.3	8.6	B
Vietnam	67%	55.6	7.9%	-3.5	1%	0.5	29.0	3.5			153.1	0	2.5	7.1	BB-
Togo	67%	76.2	11.0%	-0.8	6%	0.6	20.6	0.9	9%	1.7	98.7	1		4.9	B-
Bolivia	66%	53.9	7.1%	-8.1	2%	0.7	16.1	2.3	4%	1.1	194.0	0	7.8	4.2	B+
Comoros	66%	21.0	1.5%	-1.0	7%	0.6	9.0	1.7	8%	3.6	108.4	0	6.8	3.0	NR
Costa Rica	66%	53.5	14.3%	-5.9	0%	0.4	15.9	2.2	2%	2.1	130.0	0	3.8	2.6	B
Mauritius	66%	66.2	10.3%	-2.3	0%	0.5	17.5	3.2	6%	0.9	127.9	0	5.3	3.8	BBB+
South Africa	66%	56.7	5.2%	-4.1	0%	0.7	14.4	4.6	6%	1.4	92.0	0	4.8	0.8	NR
St. Lucia	66%	64.3	11.1%	-1.0	0%	0.6	24.2	2.0	5%	1.3	108.6	1	3.0	0.9	NR
Brazil	62%	87.9	6.1%	-7.2	0%	0.7	14.6	3.7	7%	1.0	94.0	0	13.6	1.1	BB-
Cameroon	62%	39.1	10.3%	-2.5	3%	0.4	26.0	1.1	14%	4.5	103.1	1	4.4	4.1	B-
Côte d'Ivoire	62%	53.2	31.5%	-2.9	2%	0.5	16.1	0.4	13%	2.5	97.7	1		7.4	B+

Country	Resilience (score)	Public debt (% of GDP)	Debt service (% of Tax Rev)	Budget balance (% of GDP)	Grants (% of GDP)	Tax effort (min=0, max=1)	Gross savings (% of GDP)	Inflation (%)	M2 growth (%)	M2 velocity (ratio)	REER (2007=100)	Curr. dep. (1 = dep)	Int. reserves (months of imports)	GDP growth (%)	Credit rating (level)
Fiji	62%	46.2		-5.5	2%			4.1	3%	1.4	104.4	0	3.2	3.5	BB-
Georgia	62%	44.9	14.9%	-0.8	4%	0.7	26.3	2.6	15%	1.9	95.3	0	3.1	4.7	BB
Islamic Republic of Iran	62%	32.2	1.0%	-1.9	0%		42.8	30.5			175.8	0		-4.8	NR
Kyrgyz Republic	62%	56.0	10.5%	-0.6	5%	0.6	19.6	1.5	6%	2.7	110.0	0	4.5	3.5	B
Mongolia	62%	73.3	17.0%	2.9	3%	0.4	25.4	7.7	23%	1.6	115.9	0	4.2	6.9	B-
Myanmar	62%	38.2		-3.0	2%	0.2	32.9	5.9	15%	1.7		0	3.1	6.8	NR
Nepal	62%	30.2	4.3%	-6.7	5%	0.7	47.1	4.2	20%	0.9	127.8	0	6.6	6.7	NR
Solomon Islands	62%	9.4	2.9%	0.7	14%		11.2	2.7	7%	2.1	137.5	0	9.2	3.9	B-
Uganda	62%	41.4	5.1%	-3.8	7%	0.5	18.0	2.6	8%	4.5	93.9	0	4.1	6.1	B
Vanuatu	62%	51.4		7.6	13%			2.9	13%	1.1	104.6	0	10.1	3.2	NR
Armenia	57%	51.3	12.2%	-1.8	1%	0.6	13.0	2.5	7%	2.2	104.1	0	3.7	5.2	BB-
Belize	57%	95.2	17.9%	-1.0	2%	0.7	11.8	0.3	3%	1.3	100.8	0	2.7	3.0	CCC
Moldova	57%	29.7	8.5%	-1.1	2%	0.6	14.8	3.1	8%	2.3	136.7	0	5.3	4.0	B-
Nicaragua	57%	37.2	9.7%	-3.2	3%	0.6	23.6	5.0	-19%	2.9	100.6	0	3.8	-3.8	B-
Serbia	57%	54.5	24.4%	0.8	2%	0.7	17.6	2.0	15%	1.9	103.3	0	4.7	4.3	BB-
Tajikistan	57%	47.9	13.0%	-2.8	5%	0.7	16.2	3.8	5%	3.6	81.9	0	4.4	7.3	B-
Burkina Faso	57%	42.9	6.4%	-4.4	8%	0.6	14.7	2.0	10%	2.1	98.4	1		6.8	B
Guyana	57%	52.9		-3.5	3%	0.7	-1.6	1.3	6%	1.6	117.5	0	2.0	4.1	NR
Niger	57%	53.8	12.3%	-3.0	13%	0.5	23.7	2.7	-2%	4.6	95.1	1		6.5	B-
Senegal	57%	61.6	14.8%	-3.6	4%	0.5	23.1	0.5	14%	2.5	89.8	1		6.7	B+
Tonga	57%	51.8	5.5%	2.8	18%	0.7		2.9	8%	1.8	118.3	0	8.0	1.5	NR
Guinea	57%	38.2	6.4%	-1.1	5%	0.4	1.0	9.8			163.0	0	3.3	5.8	NR
Equatorial Guinea	56%	43.3		0.5	0%		6.6	1.3	-3%	6.7	109.0	1		-5.7	NR
Belarus	53%	47.8	18.6%	1.8	0%	0.7	27.1	4.9	8%	2.8	71.1	0	1.9	3.1	B-
Grenada	53%	63.5	23.0%	4.6	3%	0.6	11.0	0.8	9%	1.2	104.5	1	3.7	4.2	D

Country	Resilience (score)	Public debt (% of GDP)	Debt service (% of Tax Rev)	Budget balance (% of GDP)	Grants (% of GDP)	Tax effort (min=0, max=1)	Gross savings (% of GDP)	Inflation (%)	M2 growth (%)	M2 velocity (ratio)	REER (2007=100)	Curr. dep. (1 = dep)	Int. reserves (months of imports)	GDP growth (%)	Credit rating (level)
Sri Lanka	53%	83.3	33.5%	-5.3	0%	0.4	25.4	4.3	11%	1.7	105.1	0	2.8	3.2	B-
Haiti	52%	33.3	1.4%	-1.7	10%		25.3	12.9	18%	1.9	105.7	0	5.0	1.5	NR
Papua New Guinea	52%	35.5	4.2%	-2.6	3%			5.2	-4%	3.6	156.7	0	4.3	-1.1	B
Lao P.D.R.	51%	57.2	25.1%	-4.7	3%	0.4		2.0			146.9	0	1.5	6.3	B-
Egypt	49%	92.7	19.6%	-9.4	1%	0.4	14.3	20.9	13%	1.2	139.3	0	6.0	5.3	B
Jamaica	49%	94.4	32.5%	1.2	1%	0.7	16.6	3.7	10%	2.0	111.6	0	4.8	1.6	B
Jordan	49%	94.4	22.6%	-4.7	6%	0.4	12.1	4.5	0%	0.9	138.6	0	8.2	1.9	B+
Maldives	49%	68.0	11.5%	-5.2	2%	0.6	-5.3	1.4	3%	2.5	131.7	0	1.9	7.5	B
Pakistan	49%	71.7	15.8%	-6.4	0%	0.4	10.4	3.9	10%	1.7	102.2	0	1.9	5.5	B-
Angola	48%	89.0	28.2%	2.2	0%		26.5	19.6	20%	3.4	116.4	0	5.4	-1.2	CCC+
Guinea-Bissau	48%	64.3	5.7%	-4.8	11%	0.5	5.7	1.4	6%	2.2	91.0	1		3.8	NR
Namibia	48%	45.8		-5.3	1%	0.8	10.4	4.3	11%	1.8	99.0	0	3.6	-0.1	BB
Nigeria	48%	27.3	2.1%	-4.3	1%		15.1	12.1	15%	3.9	132.2	0	5.8	1.9	B-
Liberia	46%	39.9	1.5%	-5.1	18%	0.4		23.5	32%		119.1	0	4.9	1.2	NR
Republic of Congo	46%	87.8		6.6	1%		23.8	1.2	-6%	4.1	103.8	1	1.1	1.6	CCC
Suriname	46%	72.8		-7.1	0%		48.4	6.9	9%	1.3	121.3	0	2.8	2.0	CCC
Chad	45%	48.3		1.9	8%		18.8	4.0	1%	6.7	110.0	1		2.4	NR
Eswatini	44%	35.2	3.5%	-11.2	3%	0.8	15.1	4.8	4%	3.5	101.9	0	2.1	2.4	B
Madagascar	44%	45.7	9.6%	-1.3	6%	0.4	21.2	7.3	12%	3.4	124.9	0	3.9	5.2	NR
St. Vincent and the Grenadines	44%	74.5	16.4%	-0.9	2%	0.7	13.6	2.3	1%	1.3	118.4	1	4.4	2.0	B-
Ukraine	44%	60.2	19.6%	-2.2	1%	0.8	15.3	10.9	6%	2.8	84.8	0	3.2	3.3	CCC+
Zambia	44%	78.1	14.6%	-8.2	4%	0.4	40.7	7.0	16%	4.4	92.6	0	1.8	3.7	CC
Lesotho	43%	44.5	5.7%	-4.4	6%		20.1	4.7	11%	2.8	79.5	0	3.4	2.8	B
Mali	43%	37.3	6.5%	-4.8	9%	0.6	14.6	1.7	14%	3.5	101.5	1		4.7	B-
Samoa	43%	50.3	12.6%	0.1	13%	0.7		3.7	9%	1.9	129.4	0	4.3	0.9	NR

Country	Resilience (score)	Public debt (% of GDP)	Debt service (% of Tax Rev)	Budget balance (% of GDP)	Grants (% of GDP)	Tax effort (min=0, max=1)	Gross savings (% of GDP)	Inflation (%)	M2 growth (%)	M2 velocity (ratio)	REER (2007=100)	Curr. dep. (1 = dep)	Int. reserves (months of imports)	GDP growth (%)	Credit rating (level)
Argentina	41%	86.1	19.2%	-5.5	0%	0.7	15.7	34.3			50.5	0	7.1	-2.5	D
Central African Republic	41%	49.9		-1.0	29%	0.3	7.1	1.6	14%	3.7	139.6	1		3.8	NR
El Salvador	41%	67.1	24.8%	-2.5	1%	0.5	15.7	1.1			103.8	1	3.0	2.5	B-
Gabon	41%	60.7		-0.2	1%		28.0	4.8	33%	4.2	107.8	1	4.2	0.8	CCC
Democratic Republic of the Congo	40%	15.3	16.0%	0.0	5%	0.2	7.1	29.3	36%	8.0	146.9	0	0.4	5.8	CCC+
Ghana	40%	59.3	20.8%	-7.0	2%	0.5	20.5	9.8	16%	3.9	69.0	0	2.7	6.3	B-
Mauritania	40%	82.9	35.2%	3.4	9%	0.6	23.9	3.1	11%	2.5	103.0	0	3.3	3.6	NR
Zimbabwe	39%	37.1	3.1%	-4.5	4%	0.7		10.6	28%	4.3		0		3.5	NR
Dominica	38%	74.1	30.7%	-19.7	5%		-9.7	1.4	2%	0.8	104.8	1	5.2	0.5	NR
Ecuador	37%	45.8	28.6%	-3.1	0%		24.6				135.9	1	0.9	1.4	D
Montenegro	37%	72.6		-6.5	3%	0.7	14.2	2.6				1	3.6	4.9	B+
Ethiopia	36%	61.0	15.6%	-3.0	6%	0.5	32.5	13.8			161.2	0	2.4	7.7	B
Kenya	35%	60.1	10.7%	-7.4	3%	0.6	11.3	4.7	11%	2.7	159.2	0	4.3	6.3	B
The Gambia	35%	86.6	28.7%	-6.2	14%	0.4	8.5	6.5	18%	2.5	89.5	0	3.6	6.5	NR
Lebanon	31%	151.0	59.2%	-11.3	3%	0.4	-3.3	6.1			144.6	0	17.3	0.3	D
Malawi	31%	62.9	6.2%	-5.5	18%	0.6	-3.8	9.2			95.1	0	2.9	3.2	NR
Mozambique	31%	99.8	17.0%	-6.9	13%	0.7	18.3	3.9	8%	2.1	103.4	0	3.5	3.3	CCC
Sudan	31%	212.1	9.3%	-7.9	3%	0.2	3.9	63.3	112%	3.2	78.4	0	0.2	-2.2	NR
Tunisia	31%	77.0	29.7%	-4.6	2%	0.6	10.1	7.3	7%	1.4	77.5	0	2.6	2.5	B
South Sudan	28%	42.2		-0.6	34%		2.8	83.5	51%	6.2		0	0.4	-1.1	BB
Burundi	27%	58.4	9.9%	-5.3	13%	0.5	-7.4	1.2	20%	3.4	165.1	0	0.9	0.1	NR
Sierra Leone	27%	63.0	12.7%	-5.6	12%	0.6	4.7	16.9	14%	4.3	83.5	0	3.5	3.5	NR
São Tomé and Príncipe	19%	74.5	8.4%	-1.9	10%		12.9	7.9	15%	2.8	218.0	0	2.6	2.7	NR
Eritrea	NR	174.3		4.2	4%		19.5				152.2	0		12.2	NR

Country	Resilience (score)	Public debt (% of GDP)	Debt service (% of Tax Rev)	Budget balance (% of GDP)	Grants (% of GDP)	Tax effort (min=0, max=1)	Gross savings (% of GDP)	Inflation (%)	M2 growth (%)	M2 velocity (ratio)	REER (2007=100)	Curr. dep. (1 = dep)	Int. reserves (months of imports)	GDP growth (%)	Credit rating (level)
Kiribati	NR	20.6		-1.1	39%	0.6		1.9				1		2.3	NR
Kosovo	NR	17.0		-2.9	4%		17.3	1.1				1	2.3	3.8	NR
Libya	NR			-0.2	1%			9.3			274.5	0	70.0	17.9	NR
Marshall Islands	NR	25.2		2.5	25%			0.8				1		2.6	NR
Micronesia	NR	20.3		25.0	27%	0.4		1.5				1		1.2	NR
Nauru	NR	58.3		32.5				0.5				1		-1.5	NR
Somalia	NR	87.6			33%							0		2.8	NR
Syria	NR										252.9	0			NR
Timor-Leste	NR	6.1	1.5%	-28.0	7%			2.3				1	7.3	-0.2	NR
Turkmenistan	NR	29.1		-0.2	0%			13.2			133.4	0		6.2	NR
Tuvalu	NR	28.1		32.0	45%			2.1				1		4.3	NR
Venezuela	NR	182.4		-31.3	0%		17.0	65374.1			512.7	0		-18.0	D
Yemen	NR	64.8		-6.7	29%		3.9	27.6			453.3	0		0.8	NR

Determinants of fiscal space

The determinants of **fiscal space** include:

- **Public debt**: countries with high debt have additional limitations to acquire additional debt compared to countries that have lower levels of debt. *Indicators*: debt as a percentage of gross domestic product (GDP) and. *Source*: IMF WEO, updated for 2018. *Coloring*: sample distribution. Cutoff for red is 60.2%, cutoff for green is 40.2%.
- **Debt service**: high levels of debt service limit the government's margin of maneuver, as they represent a sizable commitment claim on total resource availability. *Indicator*: PPG[2] debt service as a percentage of tax revenue. *Source*: author's calculations based on World Bank's International Debt Statistics, IMF WoRLD, and IMF's WEO. updated for 2017. *Coloring*: sample distribution. Cutoff for red is 14.8%, cutoff for green is 7.7%.
- **Budget balance**: governments already having expenditure pressures would find it more difficult to expand that spending or sustain the current budget when there is a decrease in revenue following a reduction in economic activity. *Indicator*: budget balance as a percentage of GDP. This indicator is taken from the IMF WEO "government net lending/borrowing", updated for 2018. *Coloring*: sample distribution. Cutoff for red is -4.3%, cutoff for green -1.1%.
- **Grants dependence**: countries highly dependent on foreign grants would not likely be able to use this route to gain spending power. Moreover, it is likely that during a period of global distress, donors would experience themselves budgeting issues limiting the margin to increase or maintain donations. *Indicator*: grants as a percentage of GDP. *Source*: author's calculations using the net official development assistance OECD over WEO GDP. *Coloring*: sample distribution. Cutoff for red 4.3%, cutoff for green 1%.
- **Tax effort**: each country has an underlying tax capacity which is shaped by its economic conditions, ideas and values, administrative constraints, and technological possibilities, among other factors. Tax effort is a measure of how much of the potential capacity is collected. High-tax effort countries will be challenged to significantly raise additional revenues to meet rising requirements, while countries that have lower tax effort have more "space" to increase revenues without unduly burdening their private sector or citizens. Countries where tax effort is *low* might find room for increasing government revenues by improving compliance and broadening the tax base; although generally, raising tax rates during periods of demand downturn is not encouraged. *Indicator*: tax effort defined as tax revenue over tax potential. Source: USAID Collecting Taxes Database, updated for 2017. *Coloring*: sample distribution. Cutoff for red .59, cutoff for green .45.
- **Savings rate**: this includes savings from government or the private sector (firms and households). The higher the savings available in an economy, the greater room for stimulating demand through fiscal policy, without running into supply bottlenecks.

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[2] PPG covers only service (interest and amortizations) on long-term public and publicly guaranteed debt and repayments (repurchases and charges) to the IMF.

Indicator: gross savings (calculated as gross national income less total consumption, plus net transfers) as a percentage of GDP. *Source*: Word Bank WDI, updated for 2018. *Coloring*: sample distribution. Cutoff for red 15%, cutoff for green 23.9%.

Determinants of monetary space

The determinants of **monetary space** include the following:

- **Inflation**: the use of monetary instruments is likely to cause inflationary pressures, and countries with low inflation have more room to use these instruments without reaching unsustainable levels of inflation. *Indicator*: average percentage change in consumer price index. Source: IMF WEO, updated for 2018. Coloring: sample distribution. Cutoff for red is 4.6%, cutoff for green is 2.2%.[3]
- **Money supply (M2) growth rate**: economists refer to M2 as "broad money," representing the main means for making payments in an economy. In countries where broad money has been expanding rapidly, inflation can be expected. An economy with slow money growth can more easily accommodate accelerating the growth rate. *Indicator*: the difference in money supply (M2) from one-year end to the next. *Source*: IMF IFS. *Coloring*: sample distribution. Cutoff for red 11%, cutoff for green 6%.
- **M2 velocity**: velocity refers to the number of times a unit of money is used in transactions versus being held as an asset. Where the velocity of money is high an increase in the money supply will increase the nominal GDP, comprised of the multiplication of the real output and the price levels. Under the assumption that increases in the money supply are more likely to increase inflation rather than real output, it is convenient to have a reduced velocity of money so the use of monetary instruments do not disproportionately increase inflation. *Indicator*: the ratio of money stock (M2) to the country's nominal GDP. *Source*: IFS for M2 supply, WEO for GDP, updated for 2018. *Coloring*: sample distribution. Cutoff for red 2.8, cutoff for green 1.7.
- **Exchange rates**: a country's real effective exchange rate (REER) is a measure of the value of its currency against a weighted average of several of its trading partners' currencies and adjusted for the effects of inflation compared to a base year. In countries where the REER index has been increasing (representing inflation outpacing the change in nominal exchange rate) expansionary monetary policy would not be recommended, since it will reduce the competitiveness of such countries and likely result in international balance of payments difficulties. *Indicator*: REER-66, the weighted average of the national exchange rate with respect to currencies of its 66 main trading partners and adjusted for inflation. *Source*: Bruegel, updated for 2019, base year is 2007. *Coloring:* sample distribution. Cutoff for red 121.9, cutoff for green 101.1.
- **Currency dependence**: currency dependence indicates whether a country has its own currency or uses that of another country or country grouping. Having currency dependence has advantages and disadvantages. The main advantage as stated by Berg and Borenztein

[3] Two countries experienced deflation during this period: Ecuador and Eritrea. Both were removed from the sample.

(2000) is that it eliminates the risk of a sudden, sharp devaluation of the country's exchange rate. This may allow the country to reduce the risk premium attached to its international borrowing. The main drawback is that the country loses its ability to use monetary tools which is a disadvantage to weather a contingency. *Indicator*: a dichotomic variable coded one if there are exchange arrangements with no separate legal tender, such as using another currency as legal tender, or being part of a monetary union, and zero if the country has its own currency. *Source*: IMF Annual Report on Exchange Arrangements and Exchange Restrictions, 2018. *Coloring*: Red if there is currency dependence, green if country has its own currency.

- **International reserves**: this indicator relates to the adequacy of a country's net official international reserves, expressed in terms of the number of months of imports that could be covered by current reserves. Reserves serve as a cushion to fill in for imbalances in the balance of payments. *Indicator*: reserves in months of imports World Bank WDI, updated for 2018. Coloring: sample distribution. Cutoff for red 3.6, cutoff for green 5.4

Determinants that affect both monetary and fiscal space.

The determinants of both **fiscal and monetary space** include the following:

- **GDP growth**: having a solid economic growth is positive in both fiscal and monetary dimensions. Debt as a percentage of GDP will decline quickly is the size of the economy is in constant growth. Similarly, an expansion in monetary policy will generate less inflationary pressures the more the economy is growing. *Indicator*: GDP growth. *Source*: IMF WEO, updated for 2018. Coloring: sample distribution. Cutoff for red 2.6, cutoff for green 3.6.

- **Credit rating**: credit ratings, as assigned by a credit rating agency, is a quantification of a country government's creditworthiness. It uses an ordinal scale-letter based scale which rates a country between having minimal chances of defaulting its debt to being in default. In general, the higher the credit rating is, the more potential pool of investors a country has, and the interest rates paid for debt are lower. *Indicator*: the minimum of the credit ratings assigned by Moody's Standard and Poor's, and Fitch Ratings. *Source*: Trading Economics, updated for 2020. *Coloring*: red if the minimum rating is below B+, or is not rated, green if the country is in investment grade (BBB- or above).

Implications for resilience

We assessed all the countries in Chart 1 by means of the framework presented. A country with mostly green indicators such as Malaysia and Thailand are considered more resilient; that is, fiscal and monetary conditions could likely better expansionary policies to be used to counterbalance demand shocks or gain and then service new debt. A country with several red indicators is considered less resilient; that is, macroeconomic policy instruments would likely be impotent to countervail external demand shocks. Examples of less resilient countries include Sudan, South Sudan, the Democratic Republic of Congo, and Sierra Leone. For USAID's purposes, a country with mostly red indicators merit greater vigilance and possible assistance to help it avoid a precipitous decline, and such country will not have the necessary tools to weather a crisis or shock such as that created by COVID-19.

In general, there is a strong geographical face to macroeconomic resilience; with Africa being less resilient, South East Asia more resilient, and Latin America, Central Asia, and Eastern Europe in between. A series of graphical representation of the geographical distribution of the resilience indicators is in Appendix 2.

While the tool represents country fiscal and monetary resilience, it should not be used in isolation to determine immediate need of increased assistance, but rather as a complement to other indicators for assessing macroeconomic impact. In particular, for COVID-19, countries vary in their degree of development of their medical system, how much they are able to implement social distancing measures, or how they have been able to shield their businesses, supply chains, people, and institutions during the crisis.

COVID-19 presents a significant challenge for all countries, but some are better equipped to deal with the crisis than others. Fiscal and monetary tools will be important to shield the economy from the direst immediate consequences of the pandemic and will also contribute to the speed of the recovery.

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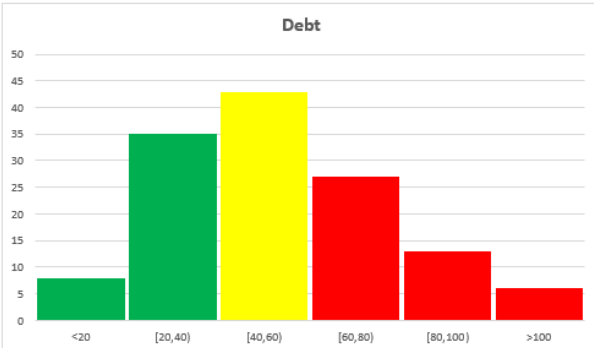
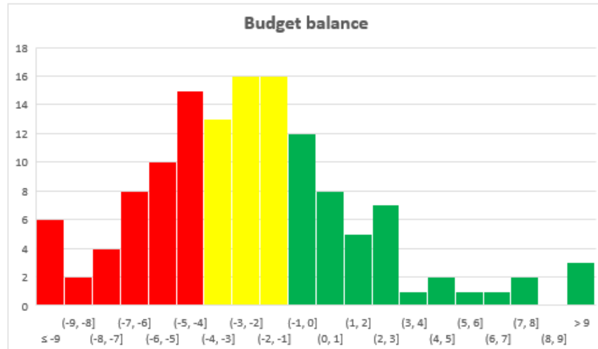
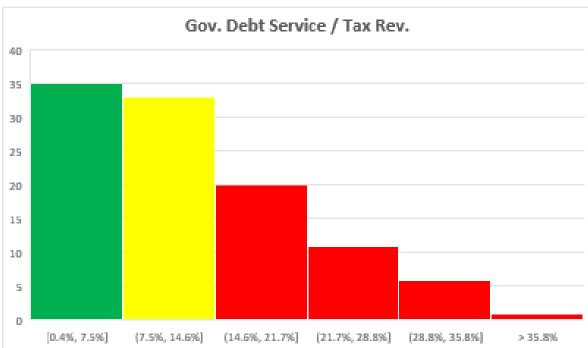
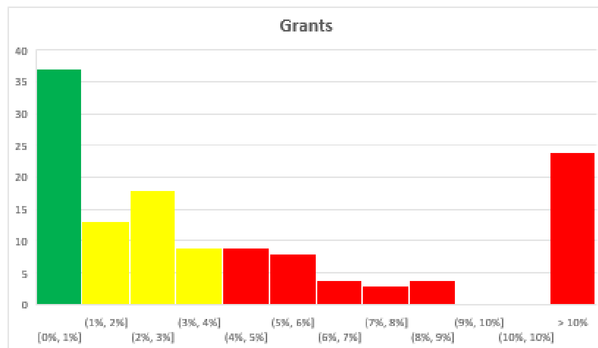
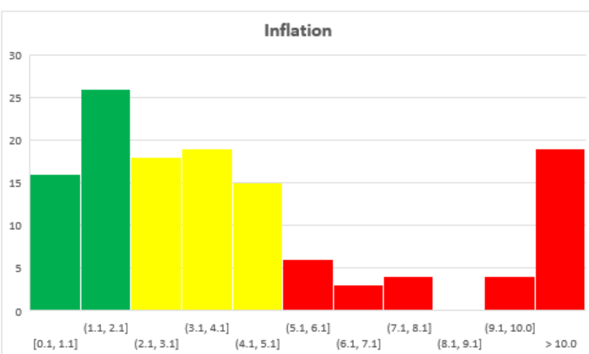
Appendix 1: Variable Sample Distribution

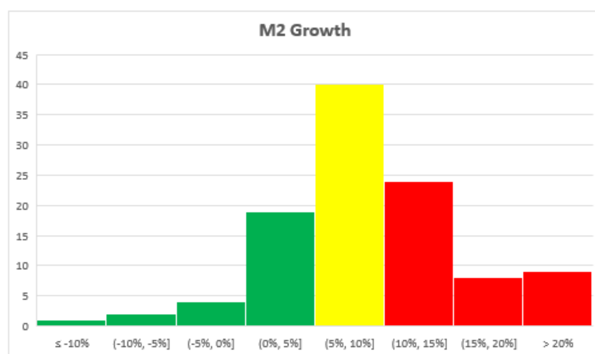


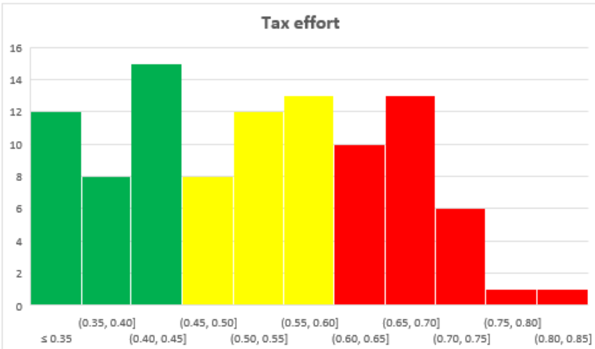


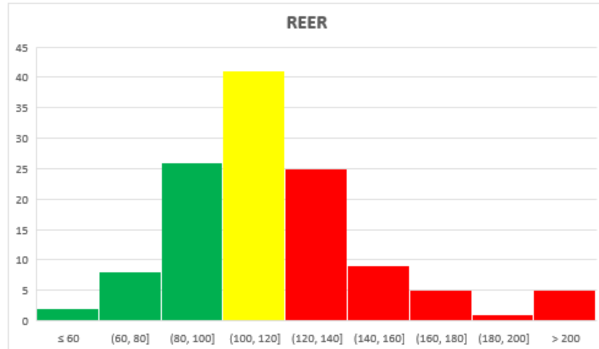


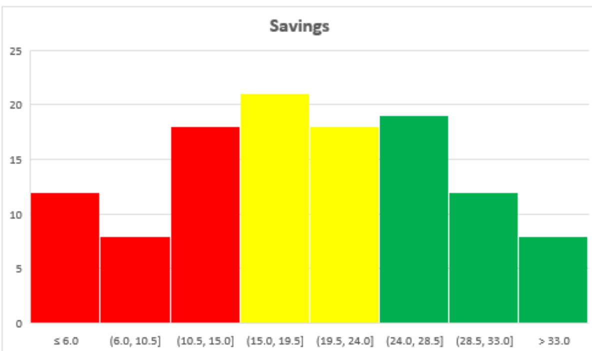


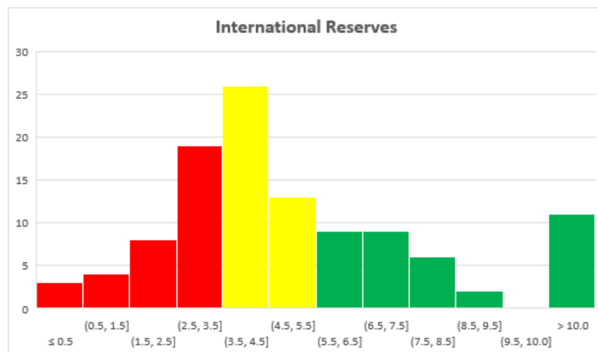


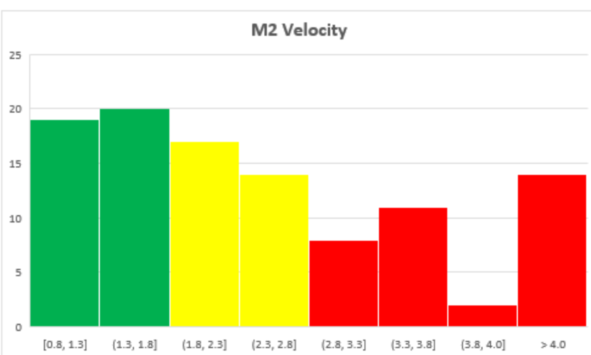


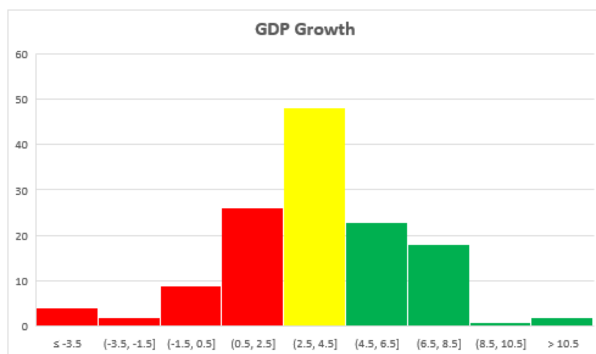

Tax effort
0
2
4
6
8
10
12
14
16
≤ 0.35
(0.35, 0.40]
(0.40, 0.45]
(0.45, 0.50]
(0.50, 0.55]
(0.55, 0.60]
(0.60, 0.65]
(0.65, 0.70]
(0.70, 0.75]
(0.75, 0.80]
(0.80, 0.85]


REER
0
5
10
15
20
25
30
35
40
45
≤ 60
(60, 80]
(80, 100]
(100, 120]
(120, 140]
(140, 160]
(160, 180]
(180, 200]
> 200

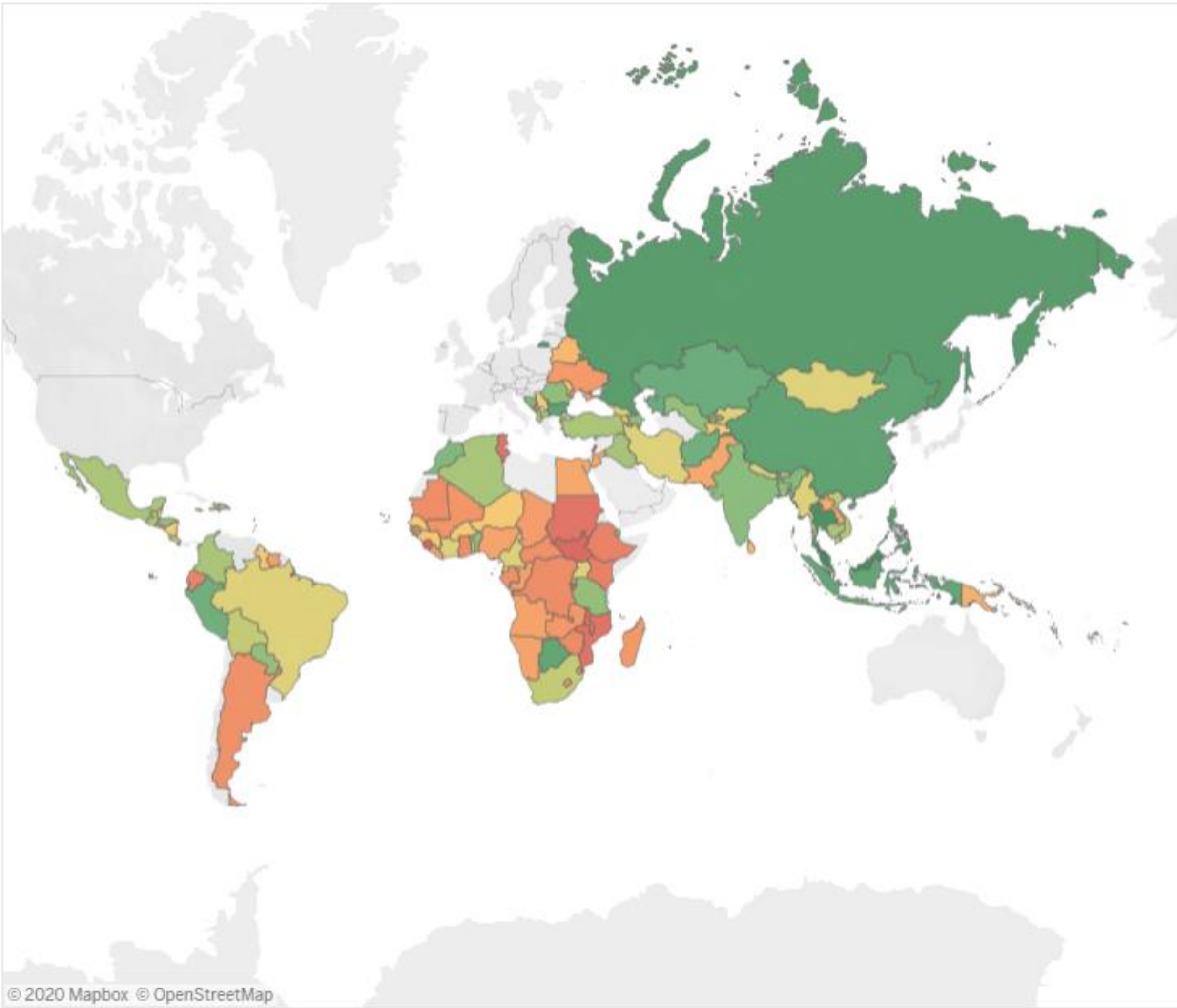

Savings
0
5
10
15
20
25
≤ 6.0
(6.0, 10.5]
(10.5, 15.0]
(15.0, 19.5]
(19.5, 24.0]
(24.0, 28.5]
(28.5, 33.0]
> 33.0


International Reserves
0
5
10
15
20
25
30
≤ 0.5
(0.5, 1.5]
(1.5, 2.5]
(2.5, 3.5]
(3.5, 4.5]
(4.5, 5.5]
(5.5, 6.5]
(6.5, 7.5]
(7.5, 8.5]
(8.5, 9.5]
(9.5, 10.0]
> 10.0

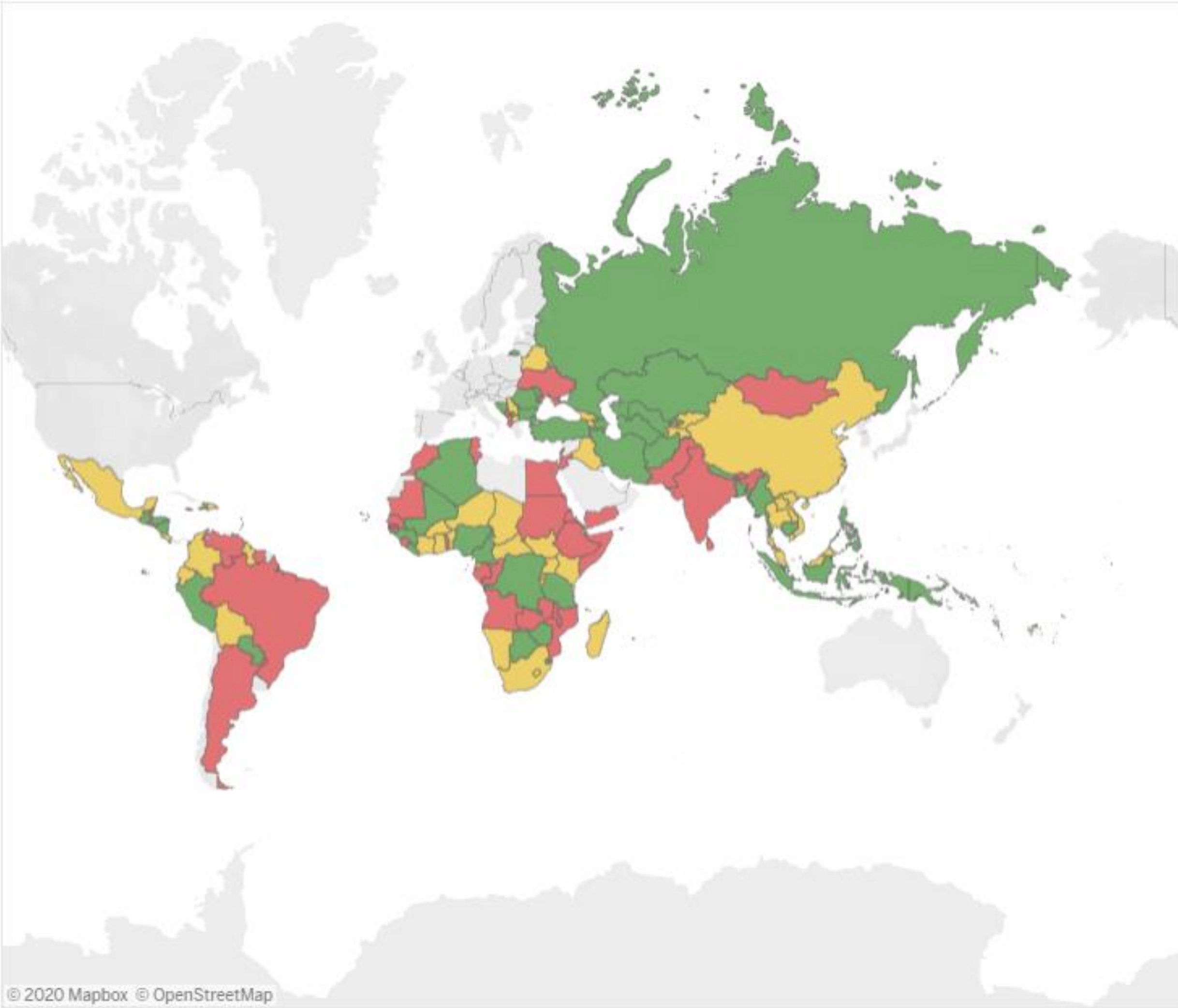

M2 Velocity
0
5
10
15
20
25
[0.8, 1.3]
(1.3, 1.8]
(1.8, 2.3]
(2.3, 2.8]
(2.8, 3.3]
(3.3, 3.8]
(3.8, 4.0]
> 4.0


GDP Growth
0
10
20
30
40
50
60
≤ -3.5
(-3.5, -1.5]
(-1.5, 0.5]
(0.5, 2.5]
(2.5, 4.5]
(4.5, 6.5]
(6.5, 8.5]
(8.5, 10.5]
> 10.5

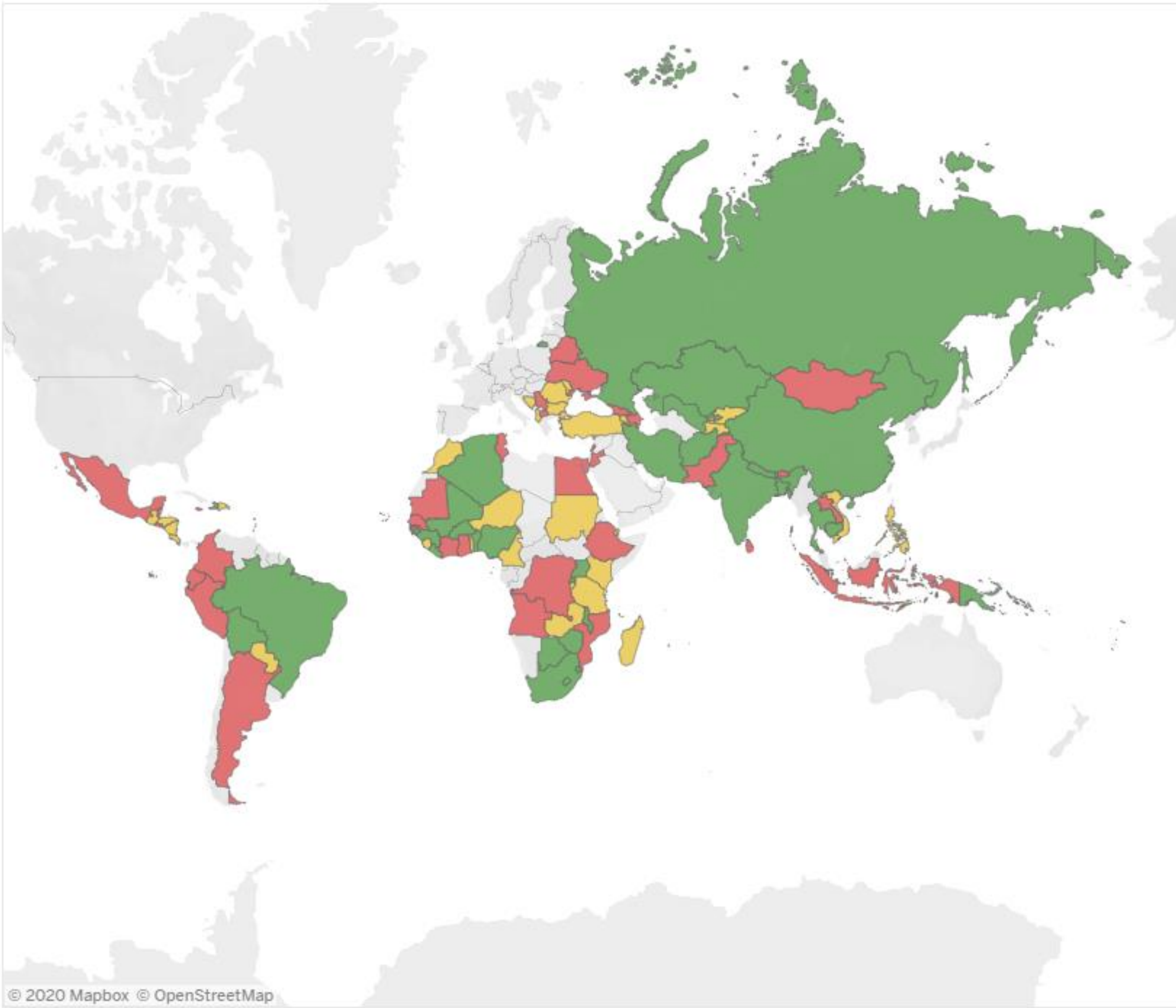
Appendix 2: Variable Geographical Distribution



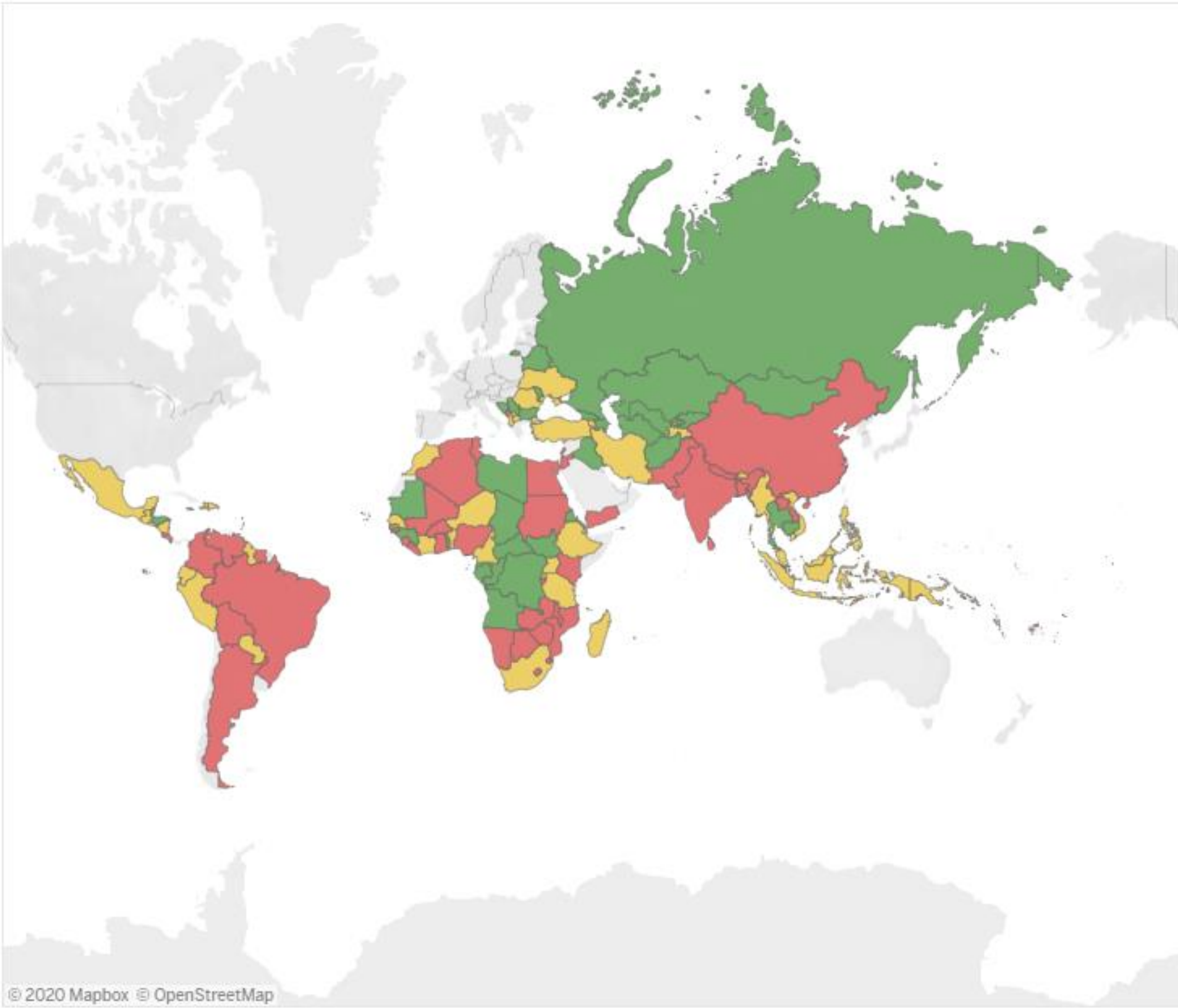
Index of Resilience, most resilient country in sample = 100%



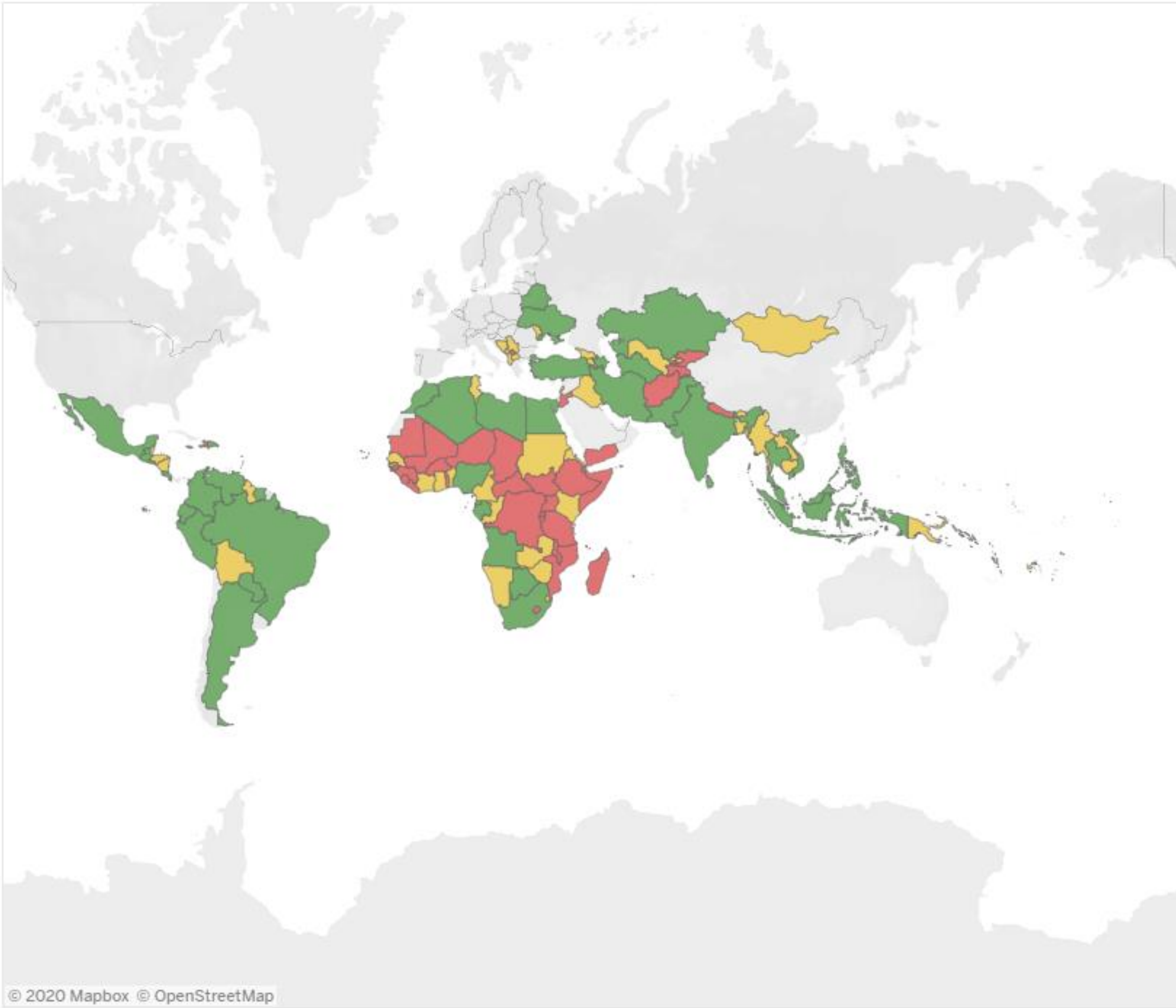
Public Debt (% of GDP)



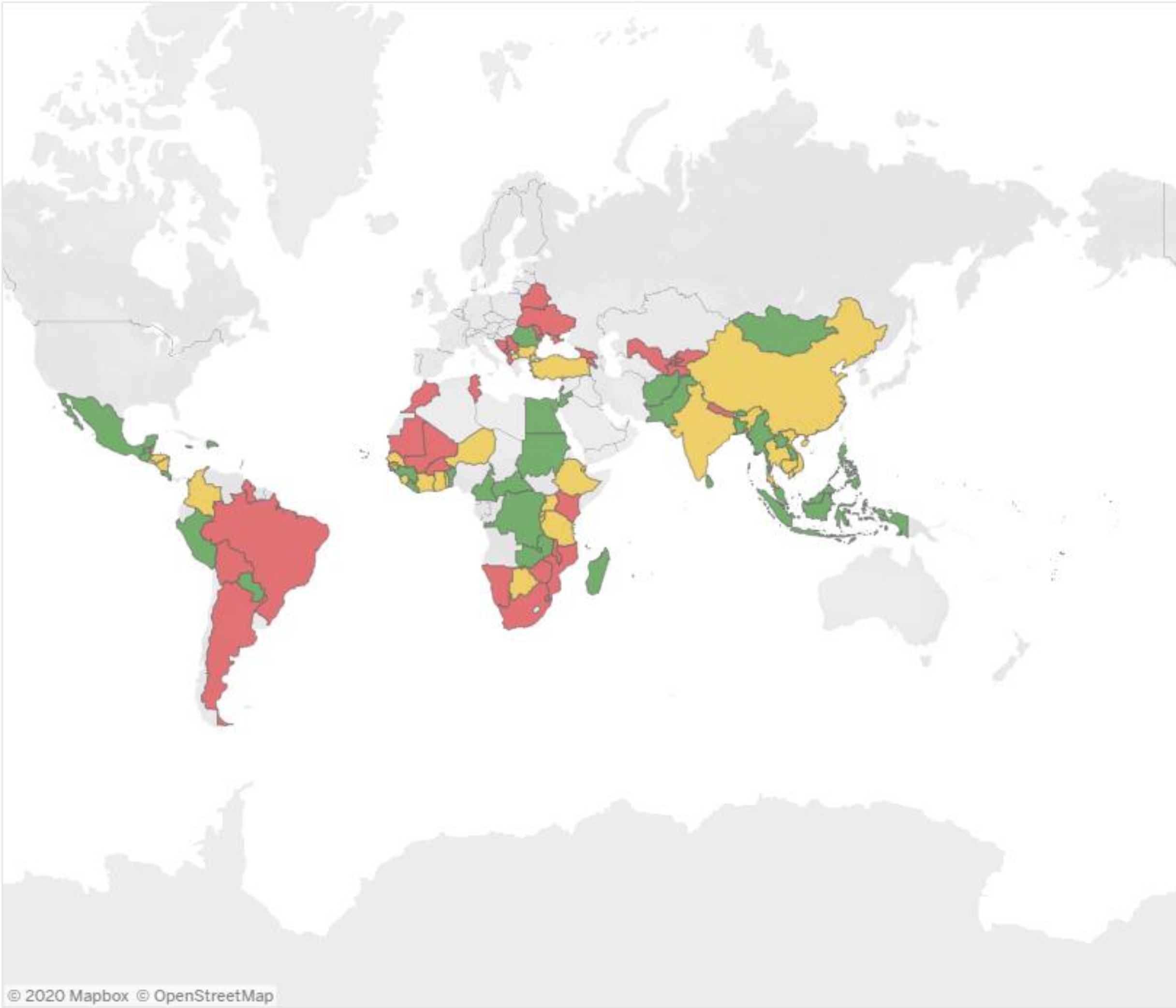
PPG Debt Service (% of Tax Revenue)



Budget Balance (% of GDP)

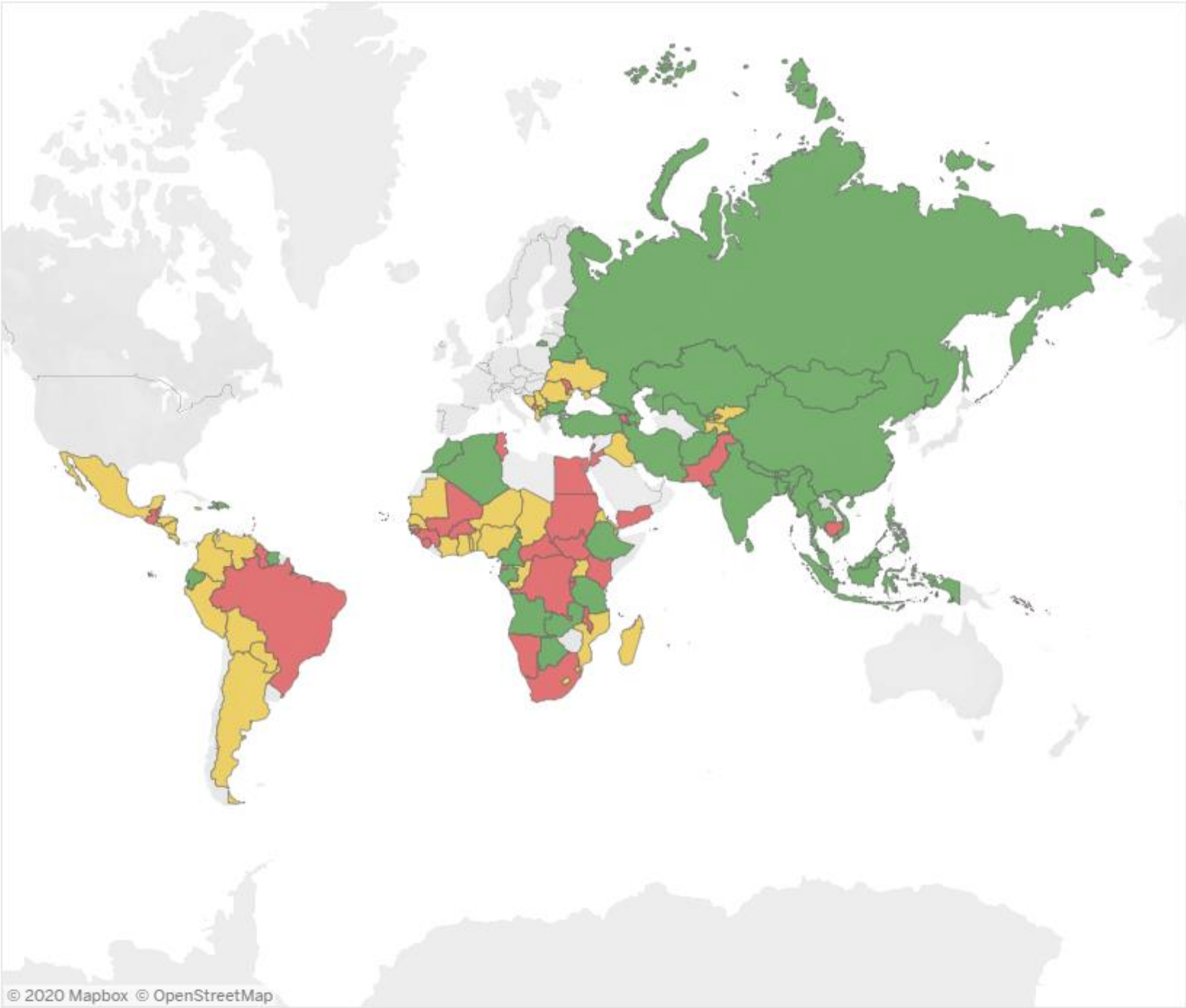


Grants (% of GDP)

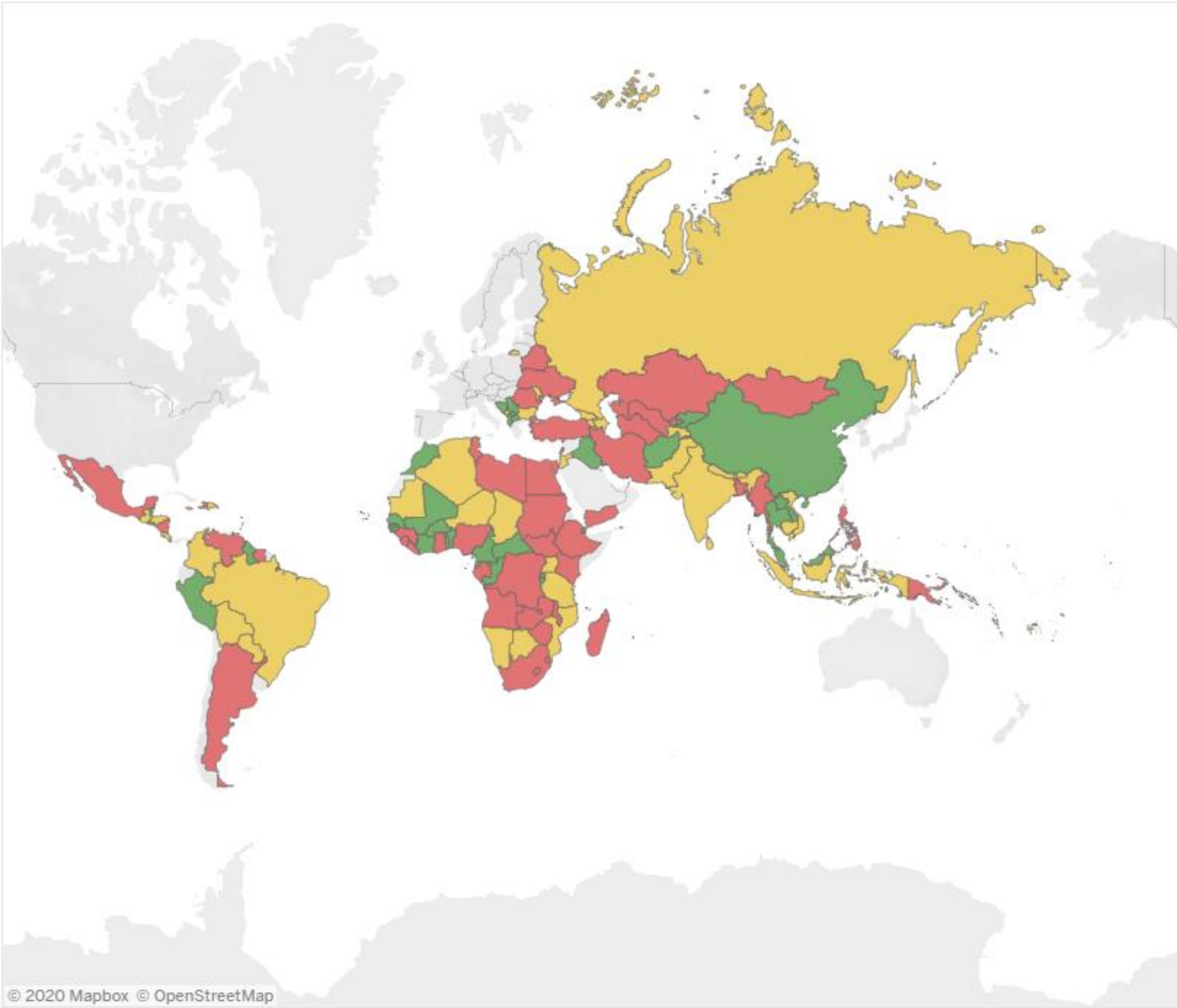


Tax Effort (USAID CTD)

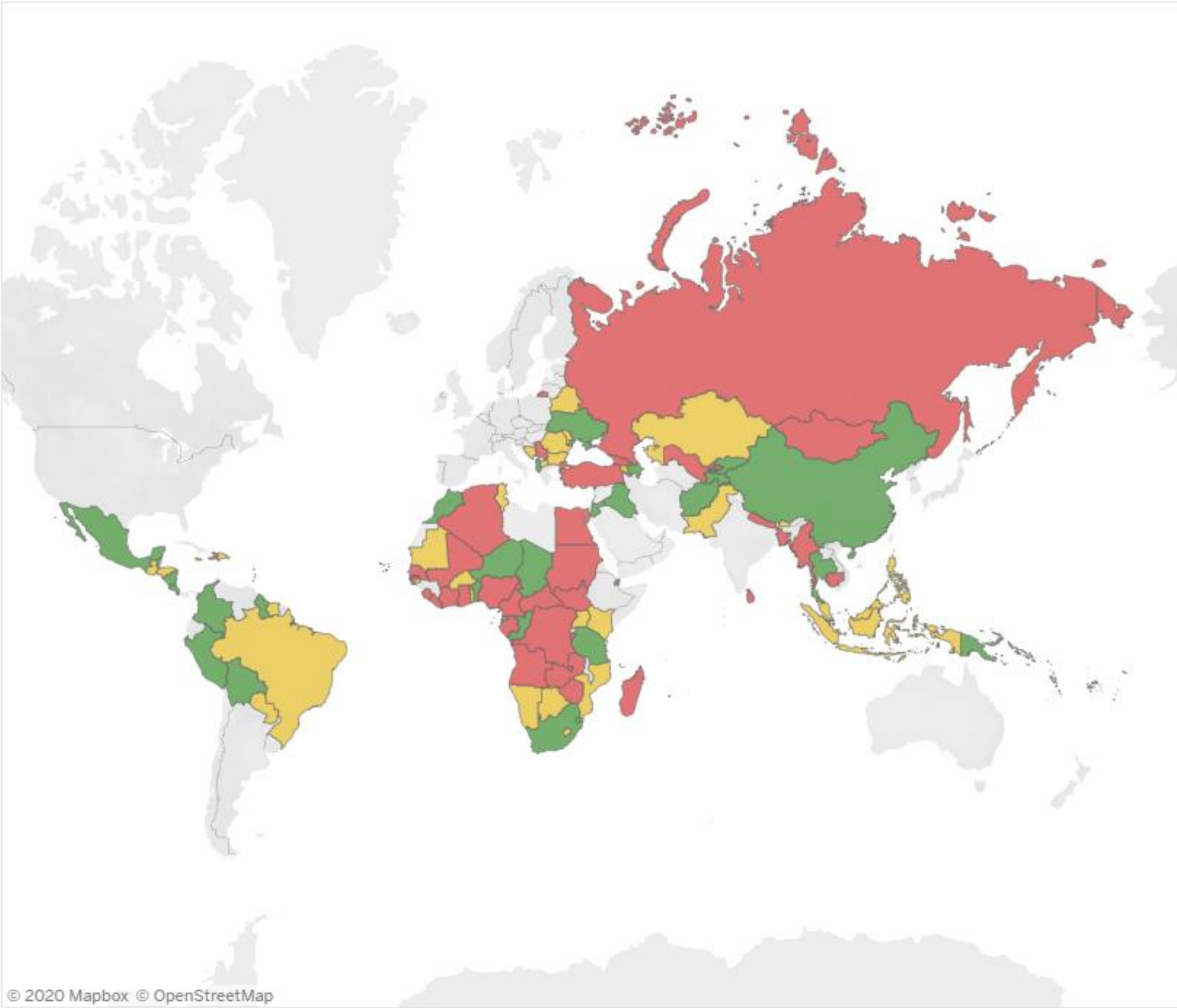
—



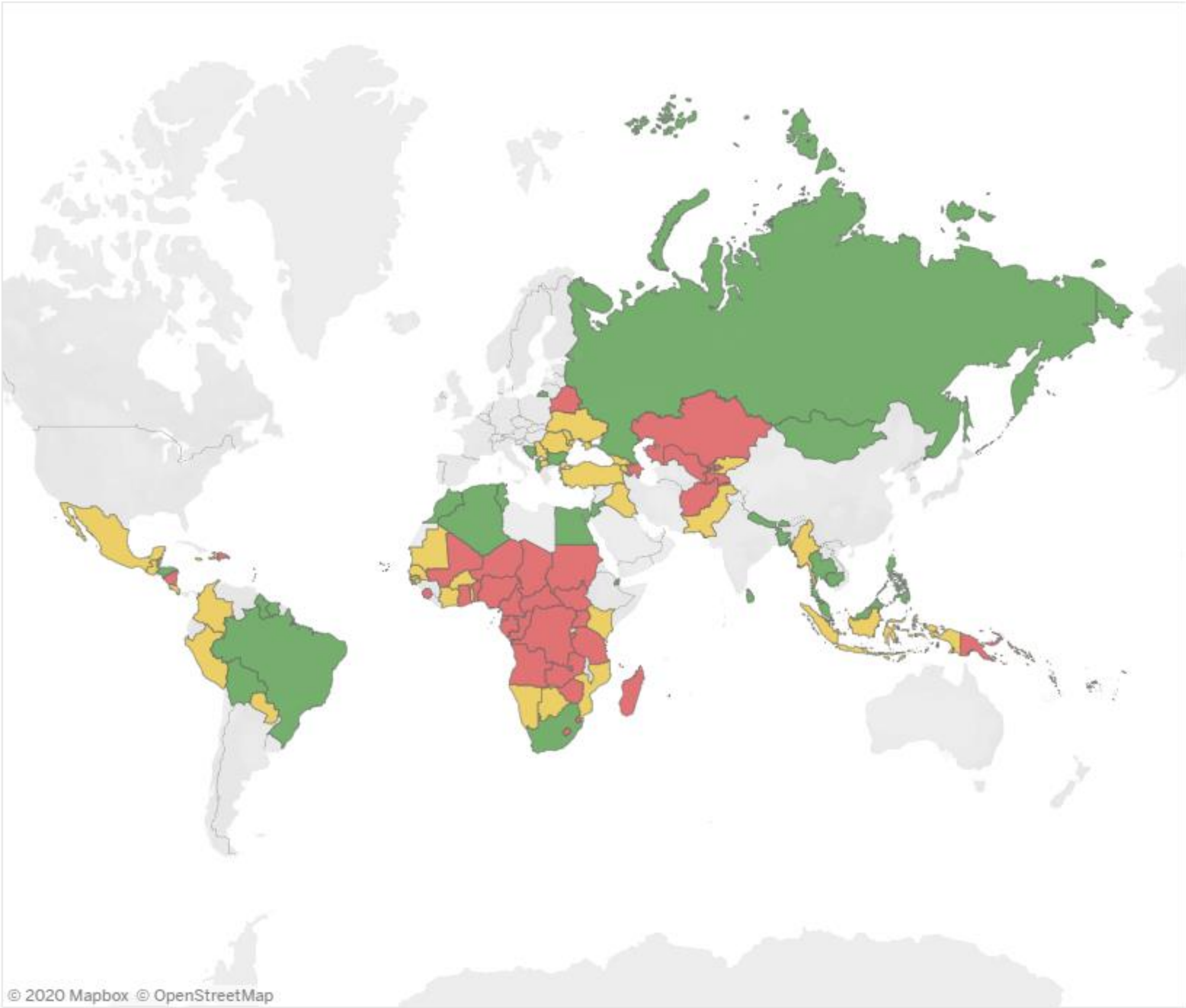
Gross Savings (% of GDP)



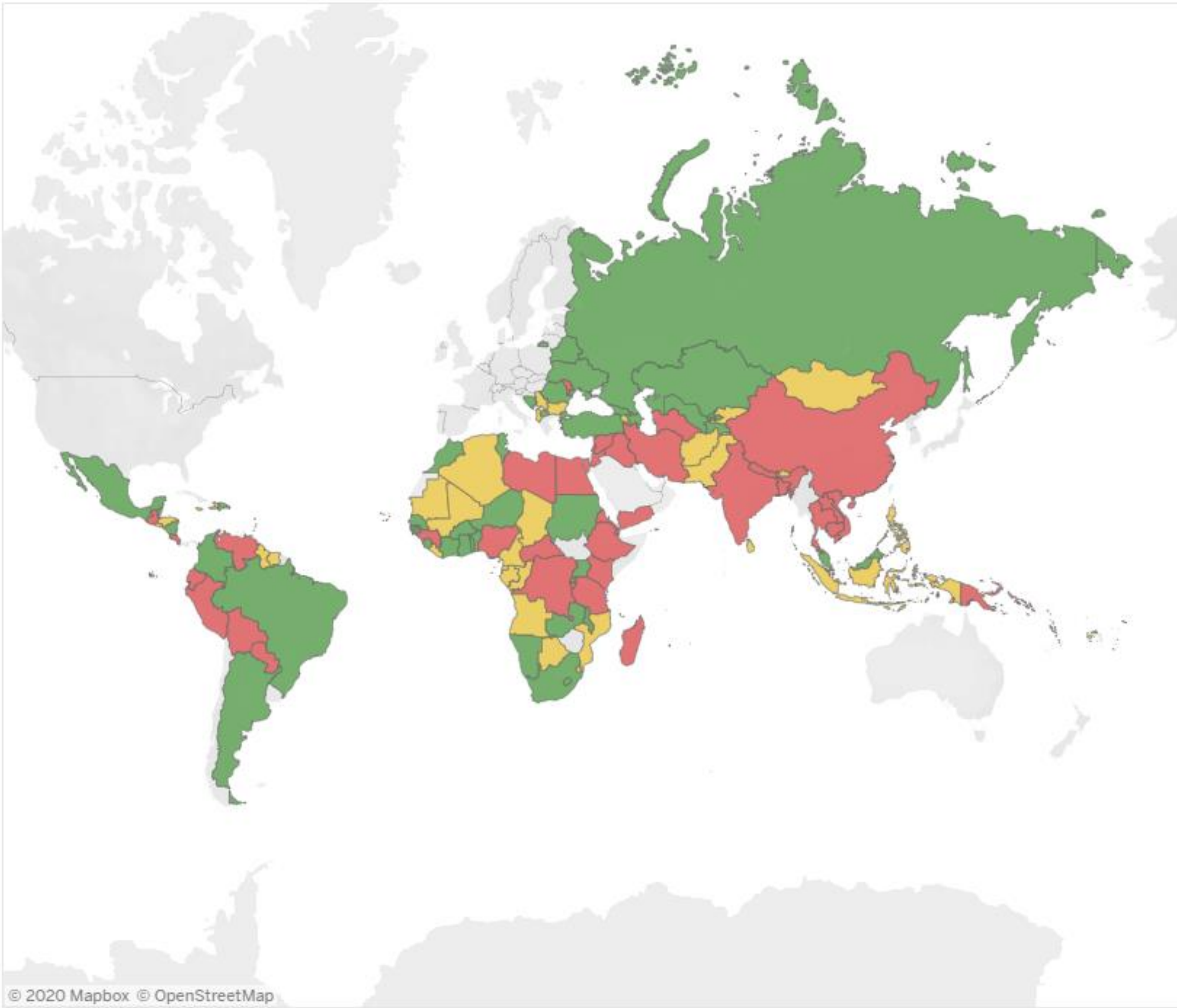
Inflation (%)



M2 Growth (%)

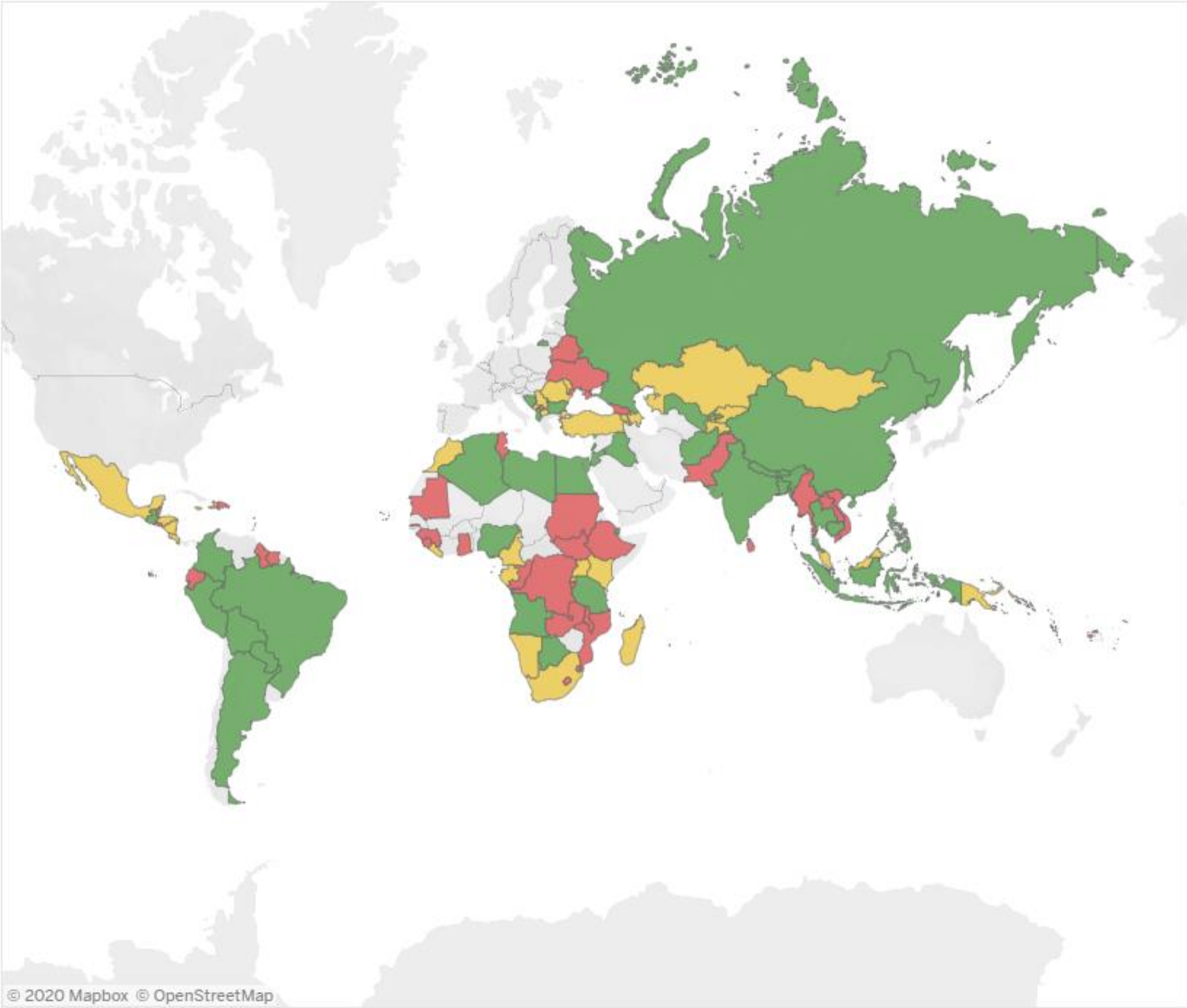


M2 Velocity

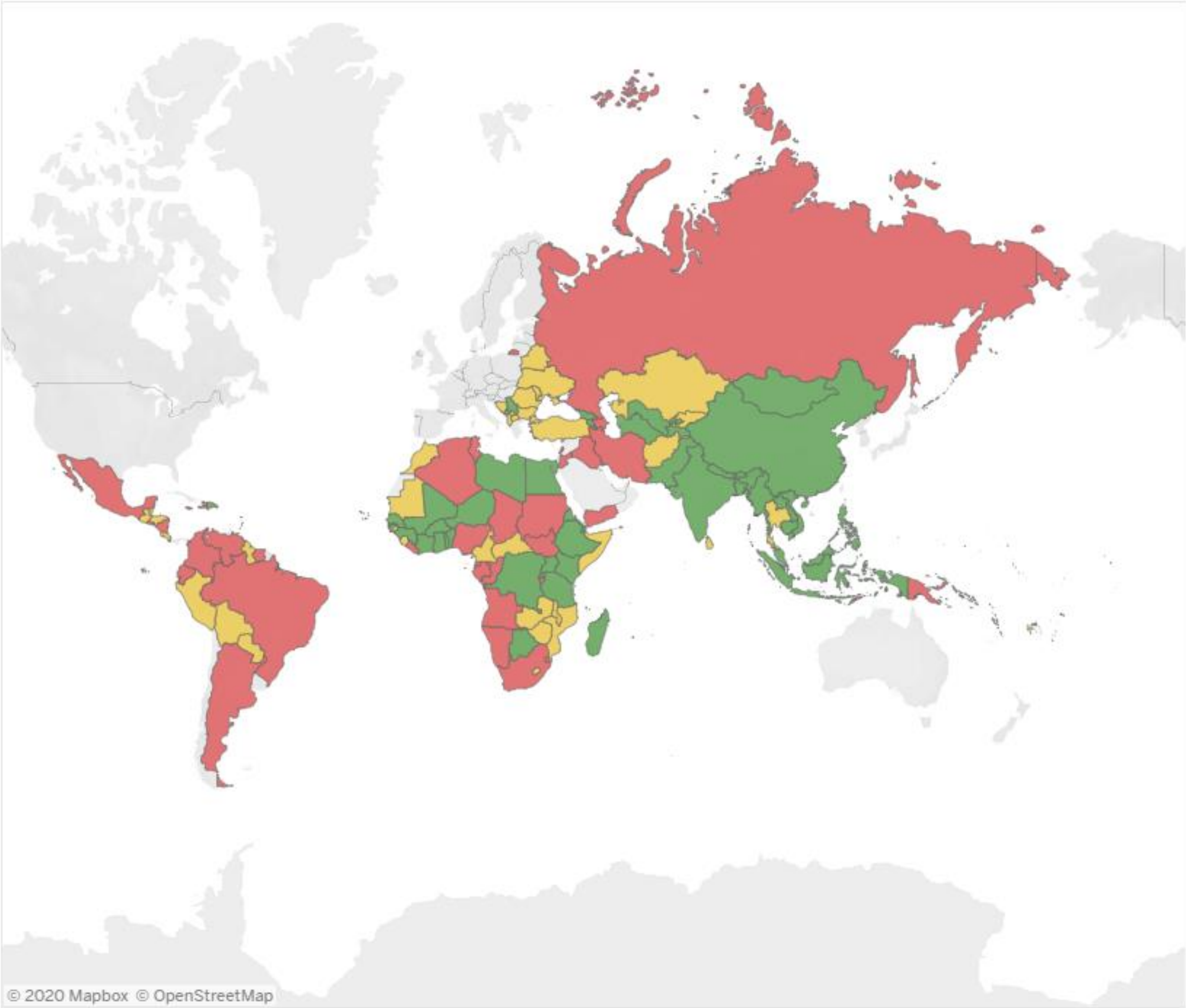


Real Exchange Rate (2007=100)

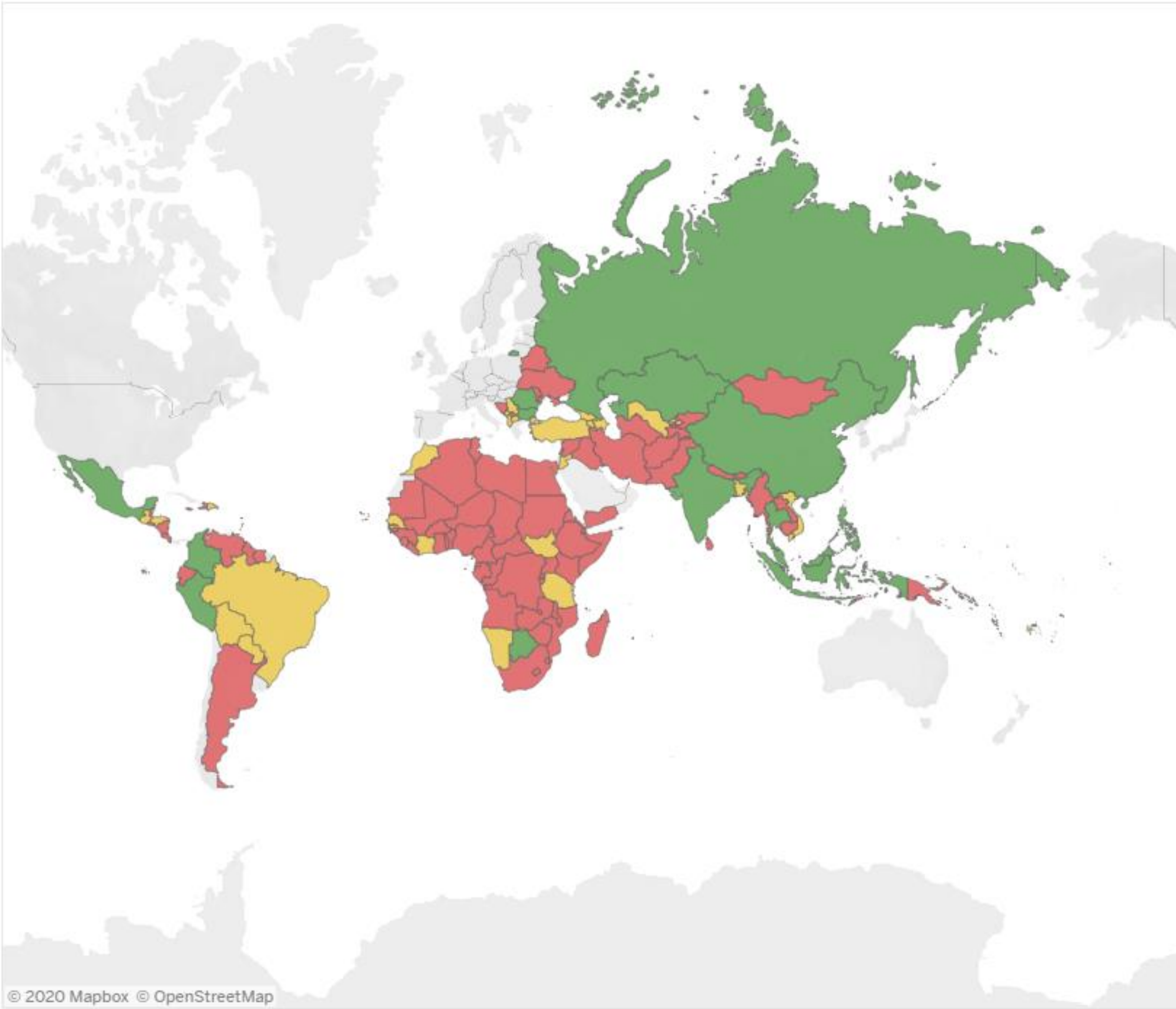
Currency Dependence (Red = Dependent)



International Reserves (Months of Imports)



GDP Growth (%)



Credit Rating (minimum of Fitch, Moodys, and S&P)