GSMA™ Intelligence

Mobile Money Regulation Index

Methodology

March 2022

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Introduction

About the Mobile Money Regulatory Index

The Mobile Money Regulatory Index measures regulatory enablers of mobile money adoption. It has been constructed according to the steps set out in the guidelines developed by the OECD and the European Commission's Joint Research Centre (JRC).[1] This methodology document presents the theoretical framework that underpins the Index; the process for selecting the indicators, along with how they are structured; the approach used to normalise the data; the weights used in the Index; and the approach to aggregation.

What is measured?

The Index measures the extent to which a country's regulatory framework enables widespread mobile money adoption. It is therefore an input index. An input index measures a number of indicators that lead to an important outcome, in this case mobile money adoption. An input index is distinct from an output index. In the context of mobile money adoption, an output index might seek to measure the level and intensity of mobile money usage. By contrast, an input index seeks to measure and understand why people are unable or unwilling to use mobile money.

Why is an index necessary?

There is no single barrier or enabler to mobile money adoption; rather, a number of demand- and supply-side factors determine whether or not a country has a thriving mobile money market. Some of these factors are set out in Table 1.

[1] Handbook on constructing composite indicators: methodology and user guide, OECD and JRC, 2008

Table 1: Examples of factors that influence mobile money adoption

Demand-side	Supply-side
Income and savings	Cost of provision
Customer risk profile	Agent network
Financial literacy	Service and product range
Access to information	Price
Consumer trust	Competition
Cultural and religious factors	Availability of related products (e.g. bank accounts)

A country's policy and regulatory framework will influence many of these factors. For example, prescriptive and burdensome regulation can constrain a firm's ability to enter the market and offer innovative products. An uncertain legal framework and lack of consumer protection can also deter people from using mobile money.

The focus of this Index is solely on the regulatory framework for mobile money. Given the importance of having an enabling regulatory framework[2], there is value in having a targeted Index as it can provide governments and regulators with specific and actionable policies to help enable growth in mobile money services. However, given the number of factors that affect mobile money adoption, it is important to note that some countries that score well on the Regulatory Index may still have low levels of mobile money adoption due to other demand- and/or supply-side issues (and, similarly, some countries may have high levels of mobile money adoption but relatively lower index scores).

Several other financial inclusion indices have been developed, including:

- **Financial and Digital Inclusion** Project (Brookings Institution)
- **Global Microscope** (Economist Intelligence Unit)
- **Financial Inclusion Index** (Alliance for Financial Inclusion)
- **Financial Inclusion Indicators** (World Bank, IMF and Global Partnership for Financial Inclusion)

The Mobile Money Regulatory Index has been designed to ensure it does not replicate any of these or other related indices. In this respect, the Index focuses specifically on mobile money and the regulatory enablers. There is value in focusing on mobile money given it is one of the most economically viable channels to provide financial services to financially excluded and underserved populations in low- and middle-income countries.

[2] The link between an enabling regulatory framework and mobile money adoption has been established in empirical research. See, for example, 'Exploring the relationship between mobile money regulation and usage' (GSMA Intelligence, 2020), 'Success Factors for Mobile Money Services' (GSMA and Harvard Business School, 2016) and 'An Empirical Examination of Why Mobile Money schemes ignite in some developing countries but founder in most' (Evans and Pirchio, 2015)

The GSMA already publishes data and analysis focused on mobile money outcomes (e.g. annual State of Industry reports)[3]. This input Index therefore fills an evidence gap by looking at one of the key factors that can enable mobile money adoption.

How are the enablers measured?

The regulatory enablers or 'dimensions' of mobile money adoption that inform the indicators selected for the Index are:

1) Authorisation: examines the eligibility to provide mobile money services, including: licensing criteria, international money transfers; the relevant authorisation instruments such as legislation, regulation, guidelines and circulars; and the proportionality of capital requirements.

2) Consumer Protection: examines the general consumer redress and disclosure mechanisms and the provisions for safeguarding of customer funds, including measures to protect customer funds in the event of bank failure.

3) Know-Your-Customer (KYC): examines the permitted identification requirements, the proportionality of KYC requirements, and the guidance provided by regulators on ID requirements.

4) Agent networks: examines the eligibility criteria for agents, their authorisation requirements, agent permitted activities and agent liability.

5) Transaction Limits: examines the proportionality of account balance and transaction limits (entry level and ceiling).

6) Investment and Infrastructure Environment: examines the external factors that are likely to affect the regulatory environment such as: affordability; ID verification infrastructure, interoperability infrastructure, provisions on the utilisation of interest income; national financial inclusion policies; data sovereignty, and; policies promoting financial inclusion for women.

These dimensions have been defined based on the existing literature assessing what constitutes enabling mobile money regulation.[4]

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[3] https://www.gsma.com/mobilefordevelopment/sotir/

[4] See, for example, 'Mobile Money: Enabling regulatory solutions' (di Castri, 2013)

Data selection

As the Mobile Money Regulatory Index is an input index, it is important that each indicator is an 'input' for mobile money adoption rather than an output or outcome (e.g. measuring the level of take-up). Furthermore, given the focus on regulation, the indicators must capture features of the regulatory framework that governments and central banks have direct control over. It is also important to develop a set of criteria against which each indicator can be considered for inclusion in the Index. The following criteria have therefore been used, based on guidance from the JRC and OECD.

- **Relevance:** the indicator should measure a regulatory barrier or an enabler in the take-up of mobile money services.
- **Accuracy:** the indicator should correctly estimate or describe the quantities or characteristics they are designed to measure.
- **Coverage:** the data should cover as many countries as possible, as the Index is intended to be a global index and cover most countries where mobile money is live.
- **Timelines:** the data should be collected consistently (or a framework should be in place that allows for consistent data collection) over time.

A key consideration in the assessment of accuracy is to include, to the greatest extent possible, 'hard' indicators that are objective and can be quantified. These are distinct from 'soft' indicators that are usually based on a degree of judgement and are often subjective. While soft indicators have value and are often necessary when benchmarking regulation and policy, these are avoided in the Mobile Money Regulatory Index, which instead is composed of objective indicators that are comparable across countries and can be verified based on mobile money regulations. Although there may be some aspect of regulation that may not be captured in the Index (for example, how effective regulators are in implementing the rules and ensuring compliance), this objective approach is adopted to avoid duplication with other indices and financial inclusion initiatives and to provide governments with specific measures and actions to develop more enabling regulation.

Table 2 presents the indicators that make up the Index. The Index comprises six key dimensions, which are constructed by aggregating one or more indicators.

Table 2: Mobile Money Regulatory Index Indicators

DIMENSION	INDICATOR	SCORE	CRITERIA
Authorisation	Eligibility	0	Non-banks including MNOs are not eligible to issue e-money/offer mobile money services at all
		20	Non-banks are eligible to issue e-money/offer mobile money services, but MNOs are prohibited from doing so. Alternatively MNOs are eligible to provide MM services, but no other non-bank is
		40	Non-banks (including MNOs) are NOT eligible to issue e-money/offer mobile money services EXCEPT by acquiring or establishing a lower-tiered prudentially regulated institution that is authorised to issue e-money/offer mobile money/branchless banking directly. The test here is whether the MNO owns the customer relationship with the mobile money account holders. If NO, then this indicator applies.
		60	Non-banks (including MNOs) are NOT eligible to issue e-money directly or obtain regulatory authorisation to offer mobile money services EXCEPT in partnership/in conjunction with a prudentially regulated institution whose role extends beyond providing funds custodial services (e.g. regulatory authorisation, regulatory engagement, etc. but does not have a customer relationship with mobile money account holders). The test here is whether the MNO owns the customer relationship with the mobile money account holders. If YES, then this indicator applies.
		100	Non-banks (including MNOs) are eligible to issue e-money/offer mobile money services directly or through a subsidiary (which is proportionately regulated), with the involvement of a bank or similar institution as custodian of customer funds
	Authorisation Instruments	0	There exists no regulatory framework to provide authorisation for the provision of mobile money services
		30	There exists no regulatory framework to provide authorisation for the provision of mobile money services, but letters of no objection are released or permission can be granted under a regulatory sandbox
		60	There exists a formal authorisation to provide mobile money services, which is based on regulatory framework. However, no authorisation has been released yet
		100	There exist a formal authorisation to provide mobile money services, which is based on regulatory framework, and authorizations have been released
	Capital Requirements	0	There are no initial capital requirements to provide mobile money services
		50	50 points are awarded if initial capital requirements are prescribed and EITHER of the following applies: (i) Initial capital requirements for mobile money providers are greater than $2 million (in purchasing-power parity) AND are greater than 10% of initial capital requirements for commercial banks AND are greater than 0.0025% of country GDP. (ii) Ongoing capital requirements are imposed and are set greater than 3% of outstanding balances.
		100	Mobile money regulations provide for initial capital requirements and they are either less than $2 milllion (in PPP) OR lower than 10% of requirements for commercial banks OR are lower than 0.0025% of country GDP. Ongoing capital requirements do not exceed 3% of outstanding balances.
	International Remittances	0-100	100 points are awarded if EITHER of the following applies: (i) Regulations (either the mobile money regulation or other regulations that also apply to mobile money) explicitly provides for mobile money customers to send and/or receive international money transfers; OR (ii) the mobile money regulatory framework is not explicit, but it is permitted in practice.

DIMENSION	INDICATOR	SCORE	CRITERIA
Consumer Protection	**Safeguarding of funds**	0-100	100 points are awarded if ALL of the following apply: (i) MNOs and other non banks providing MM have to keep 100% of their e-money liabilities in liquid assets; AND (ii) MNOs and other non-banks must implement ring-fencing arrangements that protect the float against claims of creditors of the mobile money provider; AND (iii) MNOs and other non banks, as MM providers, cannot intermediate customer funds. If only banks are allowed to provide mobile money or issue e-money, 100 points are awarded.
	Consumer Protection Rules	0-100	20 points are awarded for EACH of the following that apply: (i) There are consumer protection rules that apply to mobile money services (either in the mobile money regulatory framework or in other consumer protection regulations or legislation); (ii) The consumer protection rules require that customers are granted access to recourse and complaint procedures in order to resolve disputes; (iii) The consumer protection rules require price disclosures for mobile money transactionss; (iv) The consumer protection rules provide a general disclosure requirement to make the terms of the service available to customers; (v) The consumer protection rules provide for the protection of MM customers' data.
	Deposit insurance	0-100	100 points are awarded if deposit insurance protection is provided for each mobile money account (either in the mobile money regulatory framework or other regulations).

DIMENSION	INDICATOR	SCORE	CRITERIA
KYC	**Permitted identifications**	0-100	100 points are awarded if EITHER of the following apply: (i) a national ID must be used and all population above the cut-off age are registered (based on World Bank ID4D data) and at least 90% of a country's adult population has a national ID, based on World Bank Findex data, OR; (ii) Documents beyond Government-issued IDs can be used as minimum requirements in the context of accessing MM services (e.g. employment ID, letter from ward or village executive).
	KYC requirements	0	Requirements for verification of information extend beyond a form of identification and a mobile number
		30	Anonymous or unregistered accounts are permitted
		80	ID and/or mobile number must be presented; any additional requested information need not be verified
		100	The regulation allows operators flexibility in setting the minimum KYC requirements, subject to some regulatory review or approval or according to regulations providing risk-based KYC tiers
	KYC Proportionality	0-100	100 points are awarded if KYC requirements for opening an entry-level mobile money account are less strict than the KYC requirements for standard bank accounts.

DIMENSION	INDICATOR	SCORE	CRITERIA
Agent Network	**Agent eligibility**	0	The regulation contains a prescriptive list on the identity of agents, and non-bank agents are not allowed.
		80	The regulation contains a prescriptive list on the identity of agents, and it allows for non-bank agents.
		100	The regulation does not contain a prescriptive list on the identity of agents.
	Agent authorisation	0-100	100 points are awarded if mobile money providers do not have to request and receive authorisation to appoint individual (or bulk) agents. If a notification framework is in place, the points are awarded.
	Agent activities	0	Regulation on the agents' permitted activities is prescriptive, and agents are allowed to perform only one (or none) of the following activities: cash in, cash out, customer enrolment.
		40	Regulation on the agents' permitted activities is prescriptive, and agents are allowed to perform only two of the following activities: cash in, cash out, customer enrolment.
		80	Regulation on the agents' permitted activities is prescriptive, and agents are allowed to perform the following activities and possibly others beyond these: cash in, cash out, customer enrolment.
		100	Regulation is not prescriptive on the permitted agents' activities.
	Agent liability	0-100	100 points are awarded if the mobile money regulations explicitly states that the mobile money provider cannot limit its liability with respect to its agents' actions (i.e. it is fully responsible for the actions and omissions of its agents).

DIMENSION	INDICATOR	SCORE	CRITERIA
Transaction Limits	**Entry-level transaction limits**	0	Limits are less than $250 (in purchasing power-parity) AND below 5% of GDP per capita
		50	Limits are less than $500 (in purchasing power-parity) AND below 10% of GDP per capita
		100	Limits are EITHER greater than $500 (in purchasing-power parity) OR above 10% of GDP per capita
	Entry-level monthly limits	0	Limits are less than $750 (in purchasing power-parity) AND below 10% of GDP per capita
		50	Limits are less than $1500 (in purchasing power-parity) AND below 20% of GDP per capita
		100	Limits are EITHER greater than $1500 (in purchasing-power parity) OR above 20% of GDP per capita
	Entry-level balance limits	0	Limits are less than $750 (in purchasing power-parity) AND below 10% of GDP per capita
		50	Limits are less than $1500 (in purchasing power-parity) AND below 20% of GDP per capita
		100	Limits are EITHER greater than $1500 (in purchasing-power parity) OR above 20% of GDP per capita
	Maximum transaction limits	0	Limits are less than $750 (in purchasing power-parity) AND below 10% of GDP per capita
		50	Limits are less than $1500 (in purchasing power-parity) AND below 20% of GDP per capita
		100	Limits are EITHER greater than $1500 (in purchasing-power parity) OR above 20% of GDP per capita
	Maximum monthly limits	0	Limits are less than $2500 (in purchasing power-parity) AND below 50% of GDP per capita
		50	Limits are less than $5000 (in purchasing power-parity) AND below 100% of GDP per capita
		100	Limits are EITHER greater than $5000 (in purchasing-power parity) OR above 100% of GDP per capita
	Maximum balance limits	0	Limits are less than $2500 (in purchasing power-parity) AND below 50% of GDP per capita
		50	Limits are less than $5000 (in purchasing power-parity) AND below 100% of GDP per capita
		100	Limits are EITHER greater than $5000 (in purchasing-power parity) OR above 100% of GDP per capita

DIMENSION	INDICATOR	SCORE	CRITERIA
Infrastructure and Investment Environment	**Affordability**	0-100	100 points are awarded if BOTH of the following apply: (i) No discriminatory taxation (mobile specific taxes) is imposed on mobile money services, AND; (ii) No pricing regulation is imposed on any type of mobile money transaction.
	Government KYC	0-100	50 points are awarded for EACH of the following that apply: (i) Government provides KYC verification for mobile money providers (verify authenticity of ID via access to Govt database); (ii) Government provides automated KYC verification for mobile money providers.
	Interoperability	0-100	100 points are awarded if the regulation does not prescribe the technical standards for interoperability.
	Settlement Access	0-100	100 points are awarded if MNOs and other non-banks providing mobile money have direct access to the country's retail payment settlement infrastructure. If only banks can provide mobile money or issue e-money, the points are awarded. If non-bank mobile money providers only have indirect access through a custodial bank, a score of 0 is awarded.
	Interest payments	0	Mobile money regulatory framework explicitly prohibits mobile money providers from earning interest on mobile money trust accounts.
		30	Mobile money regulatory framework does not explicitly address whether mobile money providers may earn interest on mobile money trust accounts, but it appears to be happening in practice.
		70	Mobile money regulatory framework explicitly permits mobile money providers to earn interest on mobile money trust accounts, with certain restrictions on how the interest may be utilised or distributed (e.g., prohibition on distribution to customers, requirement that funds are distributed to customers, requirement that funds are used for customer benefit, etc.)
		100	Mobile money regulatory framework explicitly permits mobile money providers to earn interest on mobile money trust accounts, with no restrictions on how the interest may be utilised or distributed.
	Financial inclusion strategy	0-100	(i) 50 points are awarded if the country has or has had in place a written national financial inclusion policy/strategy. (ii) A further 25 points are awraded if the written national financial inclusion/policy has or has had at some point a specific mobile element. (iii) A further 25 points are awarded if the written national financial inclusion/policy has or has had at some point targets to address the gender gap. If the gender gap in financial access is less than 9%, according to World Bank Findex survey data, the points are awarded. If a country has no written financial inclusion policy/strategy but more than 95% of the adult population has an account (according to World Bank Findex survey data), 100 points are awarded.
	Data sovereignty	0	There exists NO data protection legislation framework that governs the use, processing and archiving of personal data AND cross-border transfer of data and meta data is completely restricted (or there are no clear provisions).
		33	Either: (i) there exists a data protection legislation framework but cross-border transfer of data is restricted OR; (ii) there is no existing data protection legislation framework but in practice, there are no restrictions on cross-border transfer of data
		50	There exists a data protection legislation framework that governs the use, processing and archiving of personal data, AND cross-border transfer of data and metadata is permitted but with restrictions (for example if organisations are obligated to keep a copy of all personal data and metadata in the home country).
		100	100 points are awarded if a country has policy and regulatory initiatives to drive financial inclusion among women. 0 points otherwise.
	Gender equality	0-100	100 points are awarded if a country has policy and regulatory initiatives to drive financial inclusion among women. 0 points otherwise.

Data updates for 2020 and 2021

As part of the Index update for 2020, we reviewed the regulatory frameworks for 31 countries (see Table 3). For the remaining 59 countries in the Index, the 2020 scores are the same as for 2019.

Table 3: Countries updated in 2020

Sub-Saharan Africa		Other regions
Angola	Guinea-Bissau	Egypt
Benin	Kenya	India
Burkina Faso	Mali	Malaysia
Cameroon	Mozambique	Morocco
Central African Republic	Niger	Nepal
Chad	Nigeria	Pakistan
Congo	Rwanda	Philippines
Cote d'Ivoire	Senegal	Tunisia
Equatorial Guinea	Togo	
Eswatini	Zambia	
Ethiopia	Zimbabwe	
Gabon		

As part of the Index update for 2021, we reviewed the regulatory frameworks for 44 countries, including two new markets in South Sudan and Mauritius (see Table 4). For the remaining 48 countries in the Index, the 2021 scores are the same as for 2020.

Table 4: Countries updated in 2021

Sub-Saharan Africa		Other regions	
Angola	Mali	Egypt	Sudan
Benin	**Mauritius (new)**	Fiji	Tunisia
Burkina Faso	Mozambique	India	Vietnam
Cameroon	Niger	Malaysia	
Chad	Nigeria	Mexico	
Congo, Democratic Republic	Senegal	Mongolia	
Cote d'Ivoire	South Africa	Morocco	
Equatorial Guinea	**South Sudan (new)**	Nepal	
Gabon	Tanzania	Pakistan	
Ghana	Togo	Paraguay	
Guinea	Uganda	Peru	
Kenya	Zambia	Philippines	
Lesotho	Zimbabwe	Singapore	
Madagascar		Sri Lanka	

Weighting and aggregation

To construct the weights at the dimension and overall index level, a number of considerations have been taken into account, including the following:

- **Statistical relationship** between indicators and dimensions with mobile money adoption.
- **Research carried out** by the GSMA and other organisations on financial inclusion and barriers to mobile money adoption.
- **Qualitative evidence** and expert opinion within the GSMA and from external stakeholders.

Based on this, the following weights have been used for the indicators and dimensions (Table 5). In order to aggregate the indicators into dimensions and the dimensions into an index score, we apply arithmetic aggregation across the Index.

For the 2021 Index, two new indicators were included in the Infrastructure and Investment Environment dimension. These were Data Sovereignty and Gender Equality (see Table 2) and they were updated for the 44 countries listed in Table 4. For the remaining 48 countries, as we do not have the relevant data, these two indicators are not included in the index score and we use an alternative set of weights for this dimension (see Table 5). When new data is incorporated for these countries, their index scores will be updated.

Table 5: Indicator and Dimension weights

Dimension	Indicators	Weight
Authorisation (25%)	Eligibility	40%
	Authorisation Instruments	30%
	Capital Requirements	20%
	International Remittances	10%
Consumer Protection (15%)	Safeguarding of Funds	40%
	Consumer Protection Rules	40%
	Deposit Insurance	20%
Transaction Limits (15%)	Entry-level transaction limits	11%
	Entry-level monthly limits	11%
	Entry-level balance limits	11%
	Maximum transaction limits	22%
	Maximum monthly limits	22%
	Maximum balance limits	22%
Agent Network (15%)	Agent Eligibility	30%
	Agent Authorisation	30%
	Agent Activities	30%
	Agent Liability	10%
KYC (15%)	Permitted Identifications	40%
	KYC Requirements	40%
	KYC Proportionality	20%
Infrastructure and Investment Environment (15%)	Affordability	20%
	ID Verification Infrastructure	15%
	Interoperability	15%
	Settlement Access	10%
	Interest Payments	10%
	Financial Inclusion Strategy	10%
	Data Sovereignty	10%
	Gender Equality	10%

Weights for countries without Data Sovereignty and Gender Equality indicators

Infrastructure and Investment Environment (15%)	Affordability	25.00%
	ID Verification Infrastructure	18.75%
	Interoperability	18.75%
	Settlement Access	12.50%
	Interest Payments	12.50%
	Financial Inclusion Strategy	12.50%

Capital Requirements

An initial capital requirement ensures that mobile money providers can cover operational costs and have sufficient assets to cover customer claims in the event of insolvency. The Index therefore assigns a score of 0 for the capital requirement indicator if no initial requirement is prescribed in the regulation.

However, it is also important that capital requirements are proportionate as mobile money transactions are mostly low-value and low risk. They therefore do not need to be as stringent as for prudentially regulated institutions, particularly as every country assessed in the Index that does not follow a bank-led model requires non-banks to keep 100% of their e-money liabilities in liquid assets.

In order to determine whether capital requirements may be disproportionate, we looked at three measures of initial capital requirement:

- Ratio of mobile money initial capital requirement compare to commercial banks (see Figure 1)
- Mobile money initial capital requirement in US dollars, measuring in purchasing power parity[5] (see Figure 2)
- Mobile money initial capital requirement relative to GDP[6] (see Figure 3)

The analysis shows that capital requirements vary significantly depending on the metric. For example, the markets where mobile money requirements are high relative to commercial banks (e.g. Botswana and Somalia) do not appear as high when the actual monetary value is considered or when GDP is factored. In some countries like the Philippines, the requirement relative to commercial banks appears low but is actually one of the higher markets in monetary value.

Given that there are a number of factors that Central Banks and regulators take into account when setting capital requirements, we use all three metrics to determine whether initial capital requirements in a country are disproportionate relative to other markets – these score 50 for the capital requirement indicator in the index. In particular, we used the following thresholds for each metric and score 50 where capital requirements exceed the thresholds for ALL three metrics.

- 10% of initial capital requirements relative to commercial banks
- $2 million in purchasing power parity
- 0.0025% of country GDP (in Figure 3, this is equivalent to $25 per million GDP)

[5] Purchasing power parity exchange rates for consumption are sourced from the World Bank, https://data.worldbank.org/indicator/PA.NUS.PRVT.PP
[6] GDP data is sourced from the IMF's World Economic Outlook https://www.imf.org/en/Publications/WEO

We also considered ongoing capital requirements for the indicator. In 2019, for the 75 countries in the Index that allowed non-banks to issue e-money and provide mobile money services:

- 59 countries imposed some form of ongoing capital requirement[7]
- 32 set the ongoing requirement as the same as the initial
- 27 set the ongoing requirement as a proportion of outstanding balances

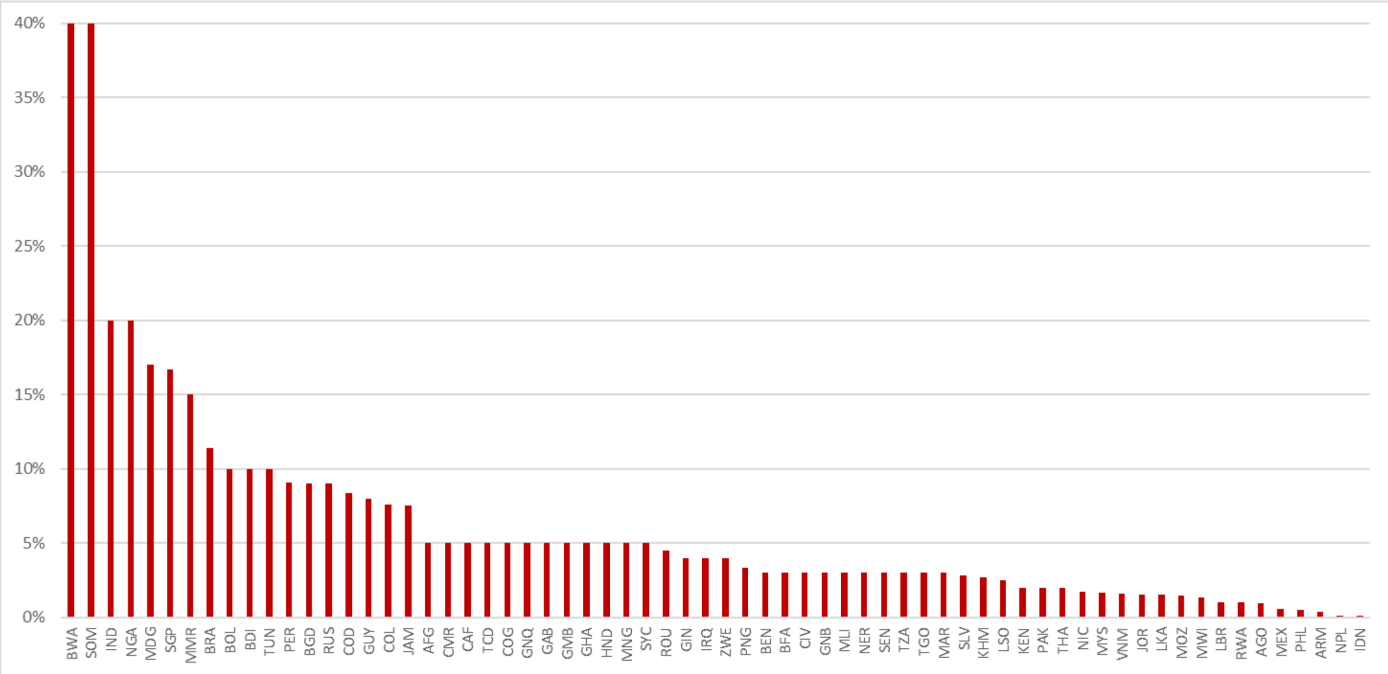
In terms of the last category, the vast majority of countries impose a requirement of either 2% or 3% of outstanding balances as an ongoing capital requirement. However, there are a few countries where the requirement significantly exceeds this. Given that common practice is to set any ongoing requirement at 2% or 3% of balances (and higher values are outliers when considering all countries in the Index), we also score the capital requirement indicator as 50 where ongoing capital requirements exceed 3% of outstanding balances.

Therefore, in summary, the indicator for capital requirements is scored as follows:

- 0 points if there are no initial capital requirements to provide mobile money services
- 50 points if EITHER of the following applies:
    i. Initial capital requirements for mobile money providers are greater than $2 million (in purchasing-power parity) AND are greater than 10% of initial capital requirements for commercial banks AND are greater than 0.0025% of country GDP.
    ii. Ongoing capital requirements are imposed and are set greater than 3% of outstanding balances.
- 100 points otherwise

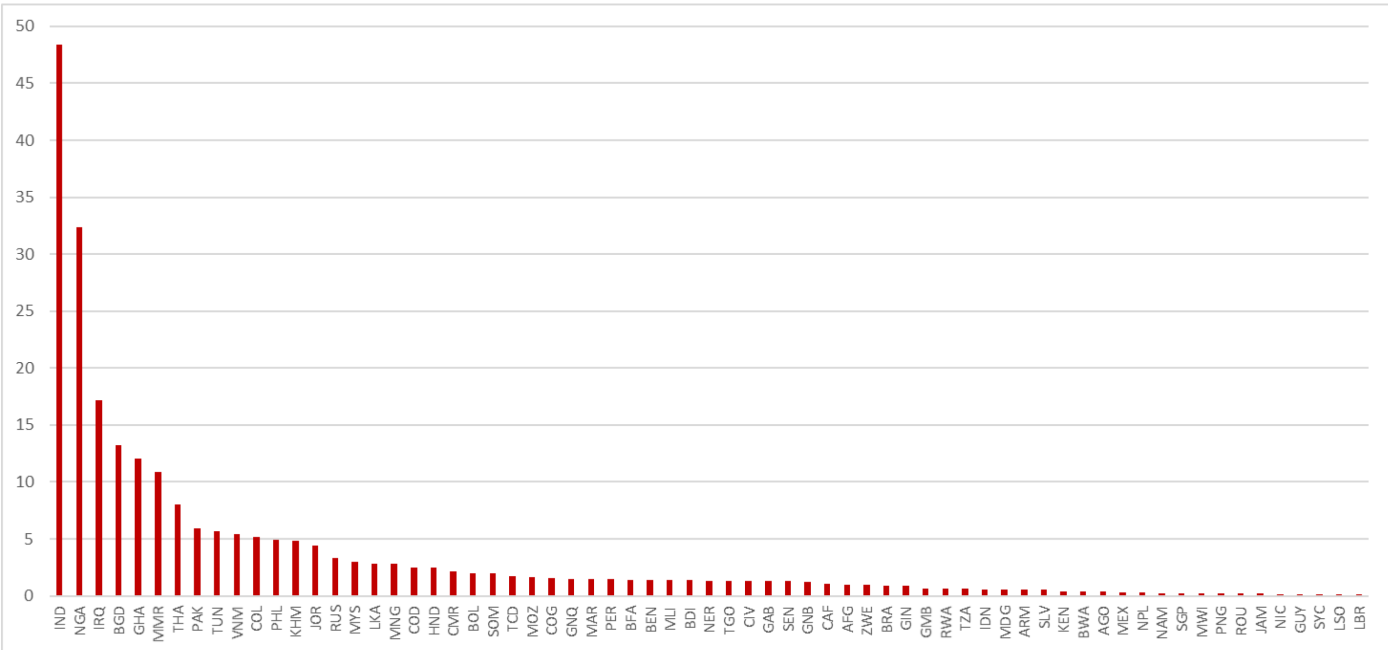
[7] These are countries where an ongoing requirement is specifically prescribed in the regulation, including where the latter states the initial requirements must be maintained on an ongoing basis. Where the regulation does not specify this, we assume that no ongoing requirement is imposed (and that any initial capital requirement can be drawn down).

Figure 1: Initial Capital Requirements for mobile money providers
(% of commercial bank requirements), 2019



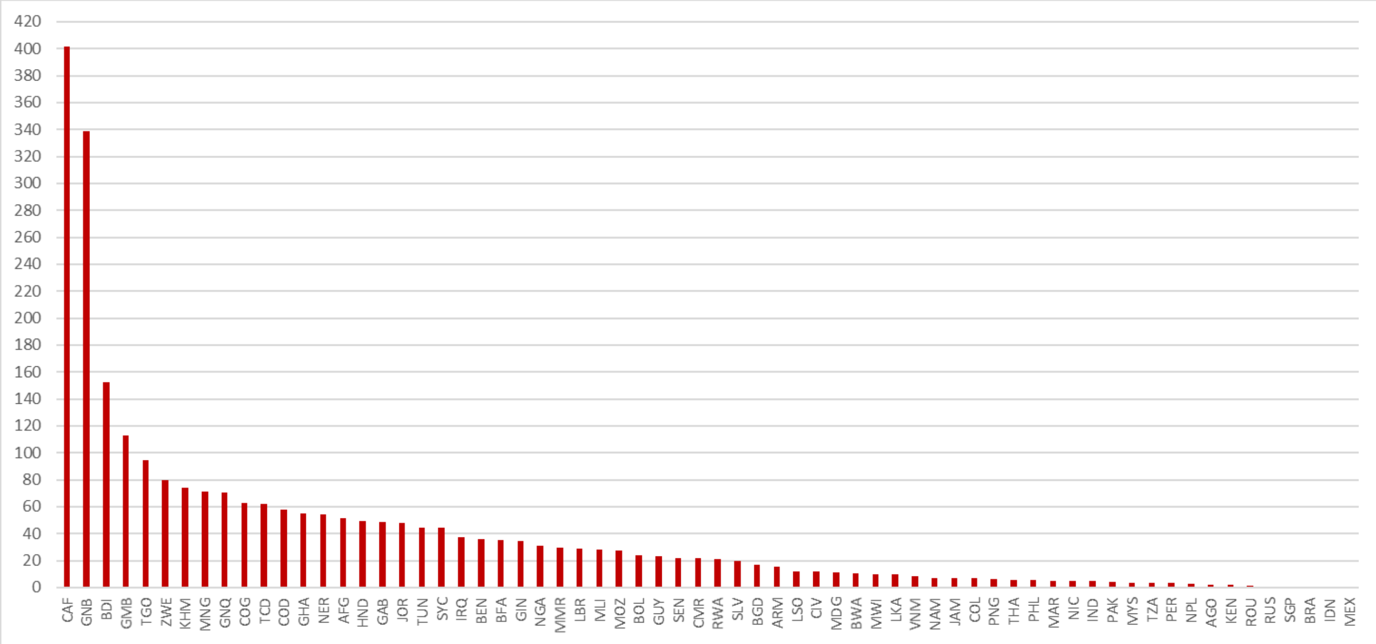
Source: GSMA Intelligence analysis of mobile money regulations. Countries where non-banks cannot issue e-money are not included.

Figure 2: Initial Capital Requirements for mobile money providers
(US dollars in purchasing power parity), 2019



Source: GSMA Intelligence analysis of mobile money regulations. Countries where non-banks cannot issue e-money are not included.

Figure 3: Initial Capital Requirements for mobile money providers
($ per million GDP), 2019



Source: GSMA Intelligence analysis of mobile money regulations. Countries where non-banks cannot issue e-money are not included.

Transaction limits

As part of the data gathering exercise for the Index, we collected information on transaction limits that applied to entry-level accounts (which have less strict KYC requirements) and accounts more generally (including those with the strictest KYC requirements). These included limits on single (individual) transactions, monthly transactions and outstanding balances. We focused only on limits that applied to consumers, as opposed to enterprises and Government agencies.

Where transaction limits were specifically prescribed in the mobile money regulations, we used this data. Where limits were not prescribed in the regulation, we carried out desk research and interviews to determine what limits existed in the market at the time and whether these were set by the Central Bank (e.g. at the time of licensing). If mobile money providers offered different limits and these were authorised and approved by the Central Bank, we used the highest limit available.

The Index includes a dimension on transaction limits as they are an important factor that can influence the level of investment and adoption for mobile money. Where providers have flexibility to set limits, they are better able to incentivise consumers to use mobile money, especially for the poorest segments of the population that may otherwise be excluded from financial services. Allowing different limits by tiers also gives mobile money providers the commercial flexibility to target different customer segments (ranging from the poor and underserved to wealthier individuals and businesses).

We therefore sought to identify whether there were markets that imposed particularly strict transaction limits, relative to other countries, as these may inhibit the adoption and use of mobile money. We did this in two steps.

First, we compared transaction limits across countries in terms of both US purchasing power parity dollars[8] and GDP per capita (as a proxy for average incomes)[9]. This data is presented in Figures 4-9 below, including entry-level and maximum account limits per transaction, per month and for outstanding balances).

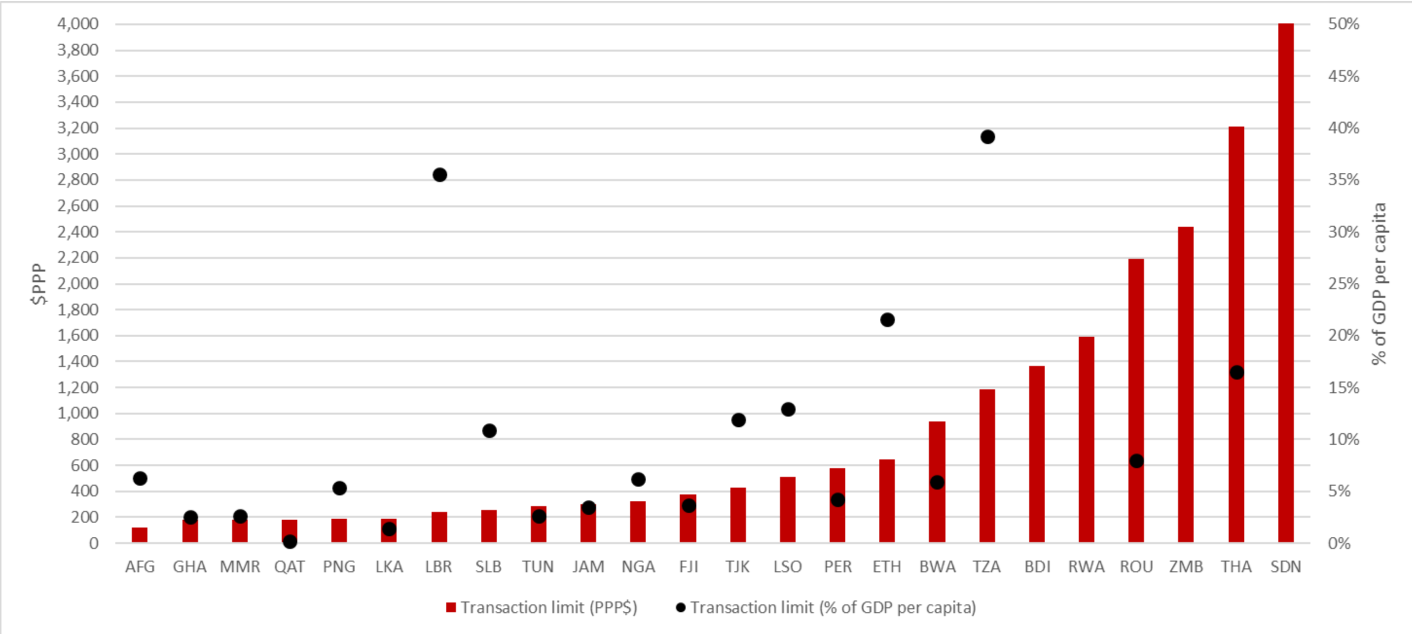
Second, we defined thresholds to determine two 'tiers' of low limits, taking into account both PPP dollars and GDP per capita. These limits are based on the graphical analysis in Figures 4-9 and statistical clustering analysis.[10] Taking Figures 5 and 6 as examples for entry-level monthly transaction and balance limits respectively, the graphs for limits in PPP$ suggests a cluster of similar countries that have limits below $750 and another between $750-$1,500.[11] After $1,500, there is a notable break in the next higher limit. Following a similar process to determine the thresholds as a proportion of GDP per capita, we scored these the two indicators (entry-level monthly limits and entry-level balance limits) as follows:

- **0 points** if limits are less than $750 (in purchasing power-parity) AND below 10% of GDP per capita
- **50 points** if limits are less than $1500 (in purchasing power-parity) AND below 20% of GDP per capita
- **100 points** if limits are EITHER greater than $1500 (in purchasing-power parity) OR above 20% of GDP per capita

We took into account both PPP and GDP per capita metrics to take a conservative approach when defining limits that are considered relatively low. Furthermore, countries where the entry-level limit is for accounts that do not have to be registered with a form of identification are not awarded with a lower score.

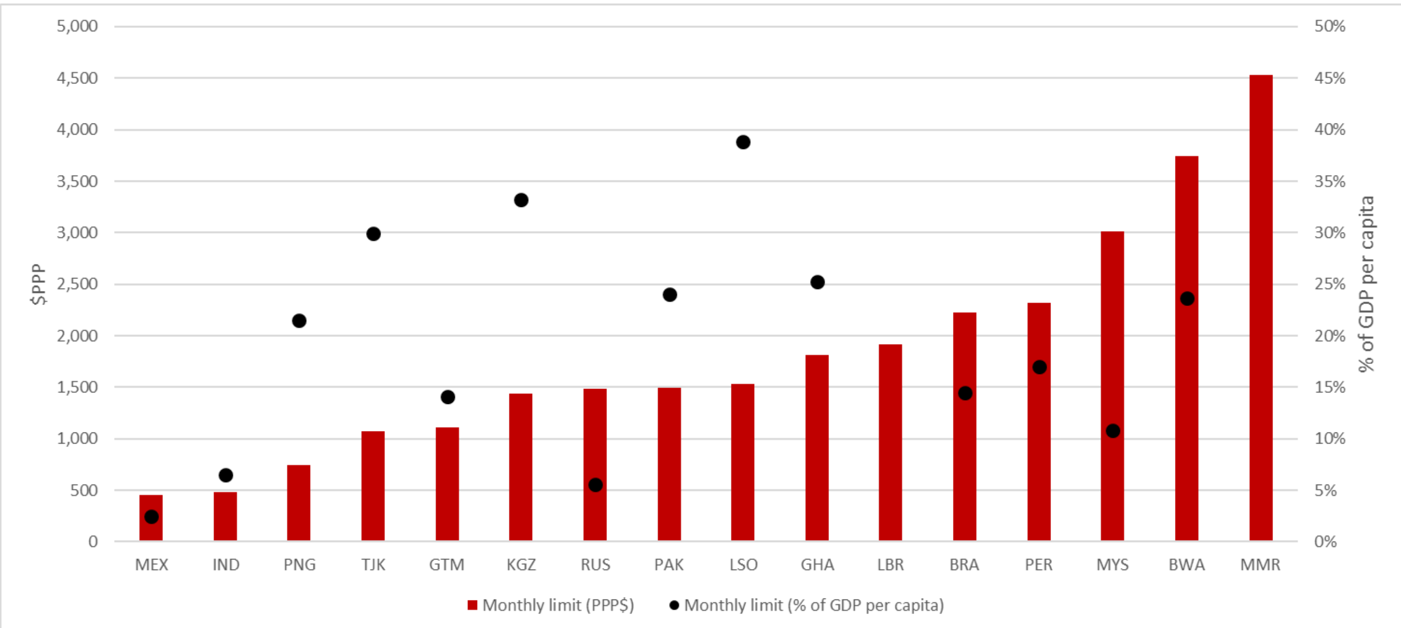
[8] Purchasing power parity exchange rates for consumption are sourced from the World Bank, https://data.worldbank.org/indicator/PA.NUS.PRVT.PP
[9] GDP data is sourced from the IMF's World Economic Outlook https://www.imf.org/en/Publications/WEO
[10] We used k-means and k-median cluster analysis to group countries into clusters for each transaction limit (using both PPP and GDP per capita metrics combined)
[11] In the case of monthly limits for entry-accounts, there are some markets that are just below $1500 and some just above. In order simplify the thresholds, we applied rounding (e.g. if analysis suggested the threshold was $1,435, we set it at $1,500 or if they suggested a threshold of 5.1% of GDP per capita we set it at 5%).

Figure 4: Transaction limits on entry-level accounts, 2019



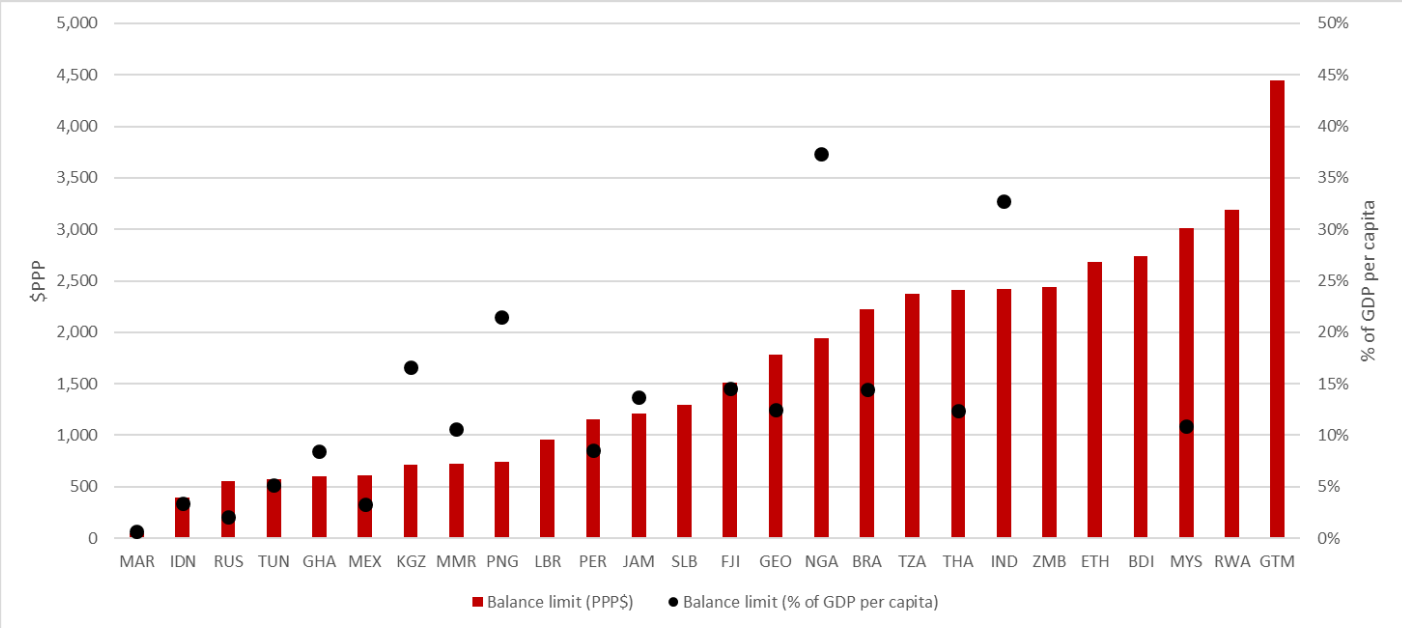
Source: GSMA Intelligence analysis of mobile money regulations. Limits higher than $4,000 and above 50% of GDP per capita are off the scales. Countries where no limits are prescribed are not included. Countries where the entry-level limit is for accounts that do not have to be registered with a form of identification are not included.

Figure 5: Monthly limits on entry-level accounts, 2019



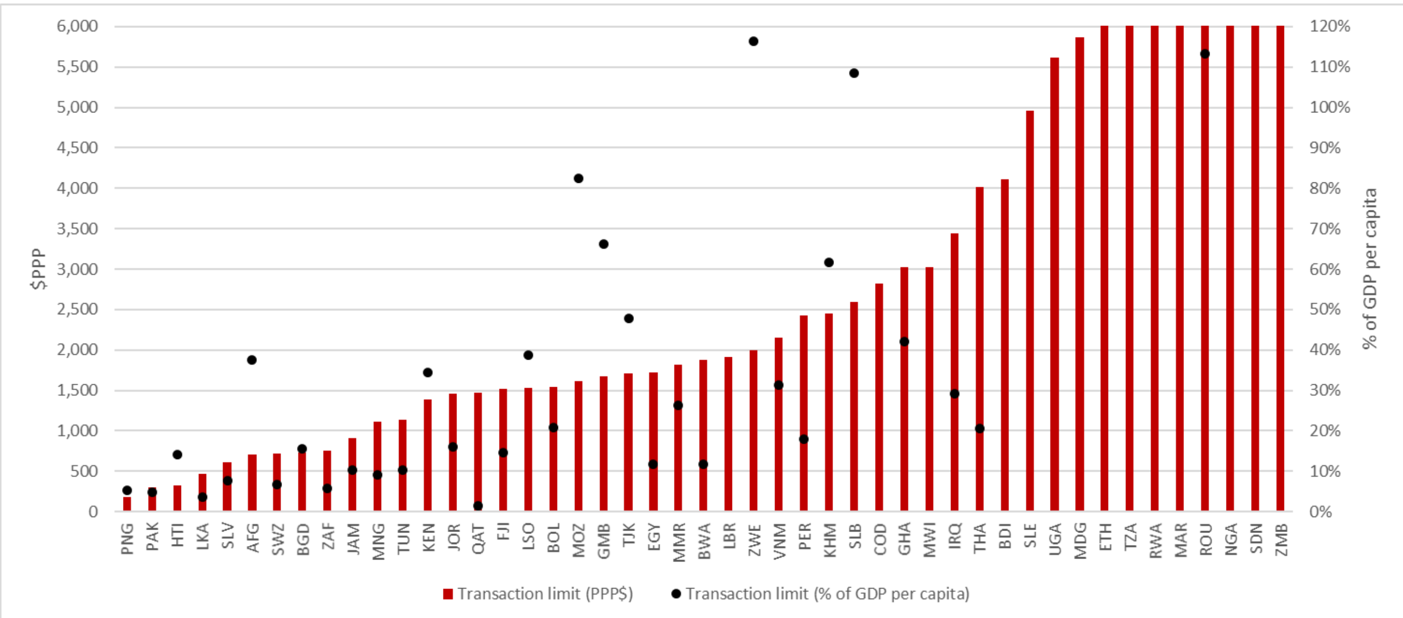
Source: GSMA Intelligence analysis of mobile money regulations. Limits higher than $5,000 and above 50% of GDP per capita are off the scales. Countries where no limits are prescribed are not included. Countries where the entry-level limit is for accounts that do not have to be registered with a form of identification are not included.

Figure 6: Balance limits on entry-level accounts, 2019



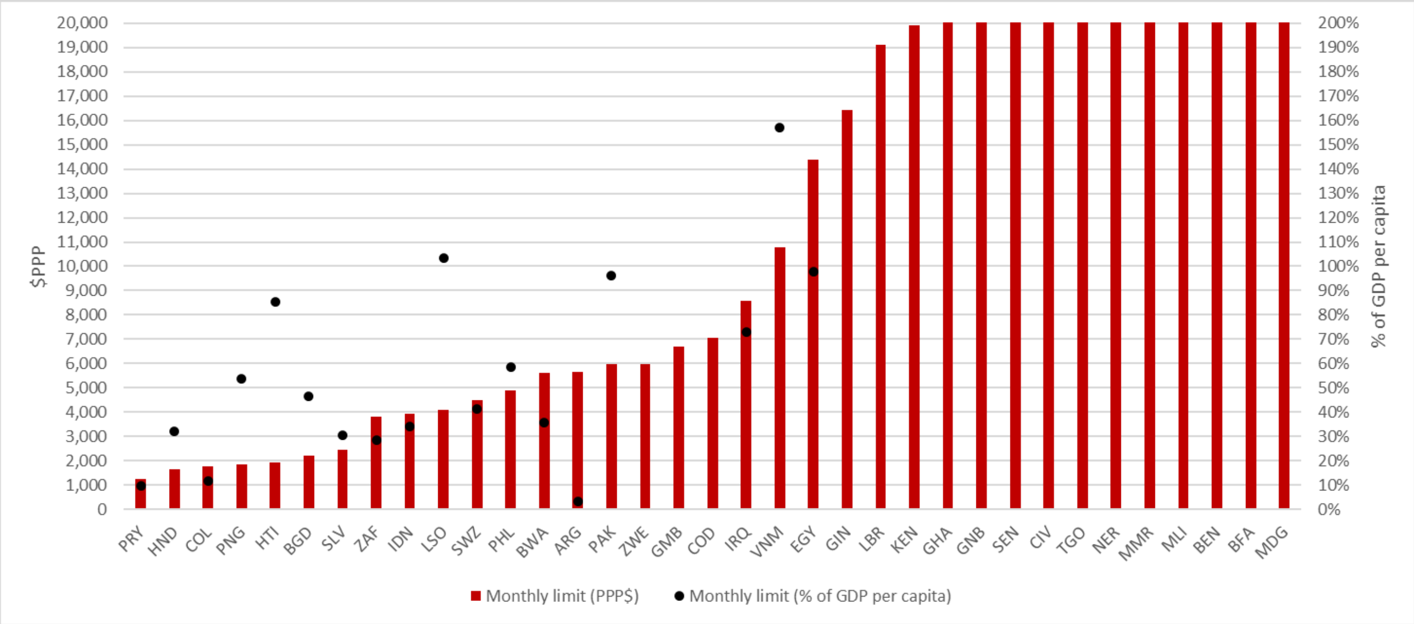
Source: GSMA Intelligence analysis of mobile money regulations. Limits higher than $5,000 and above 50% of GDP per capita are off the scales. Countries where no limits are prescribed are not included. Countries where the entry-level limit is for accounts that do not have to be registered with a form of identification are not included.

Figure 7: Transaction limits on any consumer account, 2019



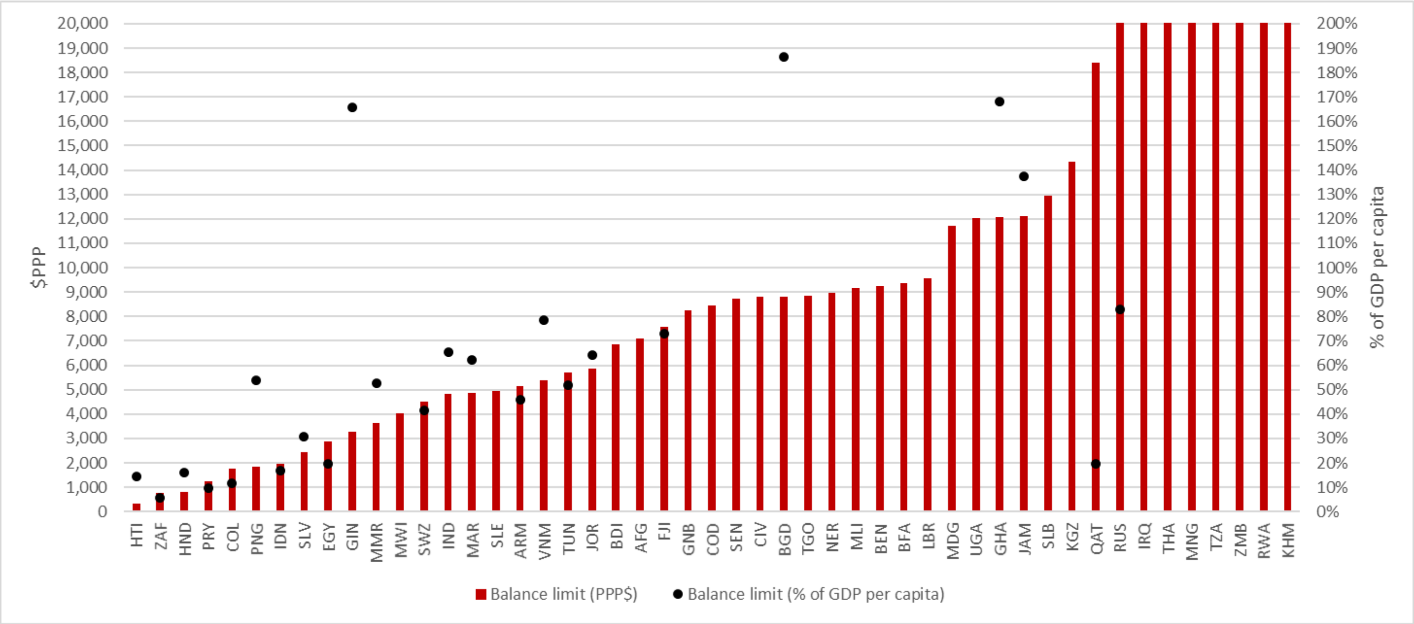
Source: GSMA Intelligence analysis of mobile money regulations. Limits higher than $6,000 and above 120% of GDP per capita are off the scales. Countries where no limits are prescribed are not included.

Figure 8: Monthly limits on any consumer account, 2019



Source: GSMA Intelligence analysis of mobile money regulations. Limits higher than $20,000 and above 200% of GDP per capita are off the scales. Countries where no limits are prescribed are not included.

Figure 9: Balance limits on any consumer account, 2019



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Source: GSMA Intelligence analysis of mobile money regulations. Limits higher than $20,000 and above 200% of GDP per capita are off the scales. Countries where no limits are prescribed are not included.

Feedback

The GSMA welcomes any feedback regarding the Mobile Money Regulatory Index.

This includes feedback on the indicators used and the approach to scoring them, as well as weighting and aggregation. We also welcome feedback on how the Index is being used.

Please contact the GSMA Mobile Money team (mobilemoney@gsma.com) with any questions, comments, suggestions or citations.