The Bitcoin Market Potential Index

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The Bitcoin Market Potential Index (BMPI) is a new composite indicator that conceptualizes and ranks the potential utility of bitcoin across 178 countries to show which countries have the most and least potential to see bitcoin adoption. The index utilizes a data set with 40 variables grouped into the index's seven equally weighted sub-indices: technology penetration, international remittances, inflation, size of informal economy, financial repression, historical financial crises, and bitcoin penetration. Data across the different BMPI variables were first standardized as follows:

$$z = \frac{x - \bar{x}}{s}$$

Where x = each data point, $\bar{x}$ = the average of the sample data points, s = the sample standard deviation, and z = the standardized data point. Data were also re-scaled to fit a scale of 0 to 1 as follows:

$$x_{0to1} = \frac{x - x_{min}}{x_{max} - x_{min}}$$

Where x = each data point, x_{min} = the minimum value of the sample data points, x_{max} = the maximum value of the sample data points, $x_{0 \ to \ 1}$ = the normalized data point, scaled from 0 to 1.

Sub-Saharan Africa is the most fertile region for bitcoin adoption, followed by Latin America and the Post-Soviet/Communist countries. Index rankings with re-scaled data are broadly similar to standardized results. The largest change observed between the two methods was for the United States, which fell from a ranking of 5th to 72nd when data were re-scaled. This change was largely due to the United States' high Bitcoin Penetration ranking and the fact that, put simply, re-scaling can reduce the effect of outliers on index rankings more than standardization (Table 1).

While the BMPI provides a useful conceptual reference for better understanding the factors that may influence bitcoin adoption it is important to acknowledge some of the index's current limitations. Specifically, due to limited data availability a number of variables that will impact bitcoin adoption are not currently included in the index (e.g., regulation).

Table 1. BMPI Top 10 Country Rankings - Standardized and Re-Scaled Data

Ranking	Country (Standardized)	Country (Re-scaled)
1	Argentina	Argentina
2	Venezuela, RB	Venezuela, RB
3	Zimbabwe	Zimbabwe
4	Malawi	Iceland
5	United States	Malawi
6	Belarus	Guinea-Bissau
7	Nigeria	Congo, Dem. Rep.
8	Congo, Dem. Rep.	Belarus
9	Iceland	Nigeria
10	Iran, Islamic Rep.	Angola

References

Böhme, R., Christin, N., Edelman, B.G., Moore, T.: Bitcoin. J. Econ. Perspect. (2014) (Forthcoming: 15, 2015)

Christin, N.: Traveling the Silk Road: A measurement analysis of a large anonymous online marketplace (2012). arXiv preprint arXiv:1207.7139

Cirasino, M.,: How can we cut the high costs of remittances to Africa?. In: The World Bank (2013)

Hileman, G.: A History of Alternative Currencies (2014)

Nardo, M., Saisana, M., Saltelli, A., Tarantola, S., Hoffman, A., Giovannini, E.: Handbook on Constructing Composite Indicators: Methodology and User Guide. OECD publishing, Paris (2005)

Saisana, M., Saltelli, A., Tarantola, S.: Uncertainty and sensitivity analysis techniques as tools for the quality assessment of composite indicators. J. Roy. Stat. Soc. Ser. A (Stat. Soc.) **168**(2), 307–323 (2005)

Saltelli, A., Nardo, M., Saisana, M., Tarantola, S.: Composite indicators: the controversy and the way forward. Statistics, Knowledge and Policy Key Indicators to Inform Decision Making, p. 359 (2005)