# Human Development: "Can money buy Happiness?"

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***Abstract**: What is the relationship between the amount of money in circulation in an economy and the level of development of that economy? This is the question we seek to answer in this work. It falls within the scope of development monetary macroeconomics, applied to one hundred (100) countries selected among the 186 classified by the UNDP. This classification is done according to their Development index level, represented by the Human Development Index (HDI). For all these countries, we analyze the impact of money, measured by the macroeconomic liquidity ratio M2/GDP on HDI level. Empirical verification is based on data from the 2015 World Bank's ranking. This aims at determining the meaning and degree of money impact on human being's integral development. Our study finds that "money provides happiness" much more in poor countries than in rich ones, while this link is much more mitigated in emerging countries.*

***Keywords**: money, Human Development Index, happiness, poor and rich countries, BRICS.*

***JEL**: E51, I31, O11, O15, O57.*

## 1. INTRODUCTION

Money impact in economic development is diversely perceived by analysis currents which have succeeded one another in the history of economic thought. For classical and neoclassical economists, money is perfectly neutral and has no effect on real economy. This analysis supports the idea of a complete "dichotomy" between the real sphere and economic monetary sphere (Walras, 1926). Any increase in money supply leads to higher prices as indicated by the money quantitative theory (Fisher, 1965).

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First-generation monetarists are in the continuation of this classical analysis. However, they attribute a main role to money in production variations, employment and prices' general level. In their analysis, change in money supply is considered as the most reliable indicator for measuring monetary policy stimulus (Brunner, 1968; Feldstein & Stock, 1994). Its main tenants, Friedman and Schwartz (1963), Friedman (1981), Brunner & Meltzer (1963) and Laidler (1999), rely on three fundamental assumptions: the exogenous nature of money supply, the stability of money demand and the stability of the link between money supply and monetary base. However, they recommend the application of a restrictive monetary policy (Friedman & Schwartz, 1963) to minimize inflation.

Second-generation monetarists, under the assumption of rational expectations, are opposed to any increase in money supply which does not adjust itself to the real cycle (Lucas, 1972, Barro, 1976, Sargent & Wallace, 1975). For this current, money is therefore not a variable to improve well-being.

On the other hand, for Keynes (1936, 1930), and the post-Keynesians, money is the central variable of economic activity. Having it confers a purchasing power which leads into wealth effect that can enable someone to acquire goods and services needed to improve his/her living standard (Pigou, 2002). It is a production factor because it allows companies to realize their investment plan thanks to credit obtained from banks. Money must therefore be widely offered to satisfy agents' production and consumption financing needs, given that its production cost is negligible (Tobin, 1965).

The New Keynesian Economy (NKE) which relies on microeconomic assumptions such as information asymmetry, nominal rigidities and markets' incompleteness[1], notes the failure of market economy. Such market failure contributes to increase social inequalities and aggravates monetary and non-monetary poverty. The NKE concludes that monetary policy is necessary and effective as solution to market failures. Its main tenants among whom Akerlof (1970), Stiglitz & Weiss (1981), Mankiw (1986), Greenwald (1995), Romer & Romer (2008) and Yellen (1996), agree on three basic points: (i) money is not neutral; (ii) market imperfections lead to non-optimal financial contracts; and (iii) the State must intervene to correct market failures. An adequate money supply under monetary policy impetus is therefore necessary and effective to stimulate economic development. An increase in money supply by money creation in return for credit, would therefore make agents more able to satisfy their basic needs

[1] In particular, in developing countries' financial markets such as those of CEMAC, there are numerous information asymmetries between lenders and borrowers, especially institutional nominal rigidities and market incompleteness. This leads to several SMEs' financial exclusion, that of the Very Small Enterprises as well as the working masses.

(food, health care, clothing, housing, education, etc.), which are part of Human Development Index.

Amartya Sen, Economics Nobel Prize in 1998, incorporated ethical and social considerations into development measurement. His works led to the development and adoption of the HDI as indicator of development by the UNDP. However, most studies which relate money to economic development focus on the causality between financial development and economic development, this being represented by the GDP per capita. None of these works took into account the HDI as target to be reached from monetary variables, hence the interest of our work which relates the quantity of money to human development. However, we adopt the macroeconomic liquidity ratio M2/GDP as an indicative variable to facilitate international comparisons between various countries or groups of countries. Money-HDI relationship measurement is then carried out on a fairly large number of countries taken at various development levels, following the ranking given by the UNDP according to HDI. In addition, our approach contributes to extend monetary policy to development social target: monetary stimulus could contribute to the production and consumption increase of basic social goods and services, thus improving populations' living standards.

Economic development, the measure of which relates to the increase of national product per capita in old models, was often analyzed as the result of an increase in production factors such as capital, labor and technological innovation. This vision did not take into account money specific significance in economic development process. Indeed, apart from its triple role as trade intermediary, account unit and value store, money influences investors' productivity and households' purchasing power (Pigou, 2002). In developing countries (DCs), monetary creation thus plays an important role in promoting economic development, given that savings are low. This is because many people live below poverty line, with very low or virtually nonexistent income. This study therefore analyzes money-HDI relationship on a wide range of countries, characterized by different[1] development levels, and chosen in five continents. Thus, it takes a universal character and allows each region to give itself a vision on the impact that money can exert on individual or collective well-being of populations. Specificities thus emerge in a large group of countries, therefore reinforcing the interest granted to this work.

The primary goal of this investigation is to verify the nature of the direct relationship between M2 money supply relative to GDP, and a nation's development level as measured by the Human Development Index (HDI) on the one hand, and to explain the

[1] Including countries with a very high HDI, high HDI, average HDI, low HDI and very low HDI, according to the categorization established by the UNDP.

nature of this link on the other. The rest of the article is organized in two points: literature on money impact on development and the methodology highlighted to empirically verify this relationship.

## 2. LITERATURE

There is abundant literature relating money to economic development. For Schumpeter (1911), money plays an essential role in developing capitalist economy, by its action as endogenous factor able to activate technological innovation. This view is similar to Marxist analysis of monetary social function in its critique of capitalist economics (Bellofiore, 1985). Empirical works on the relationship between financial sector development and economic development appears with Goldsmith (1969) who finds a positive correlation between financial system development and economic growth, by observing 35 countries over the period 1860-1963.

Other empirical works emphasize on the relationship between finance and growth (Levine, 1997). This relationship is confirmed by data from the IMF and those of the World Bank (King and Levine, 1993). These analyzes are carried out either in cross-section on several countries or in time series, and are conducted by Theil (2001), Levine (2002) and Wachtel (2003). Ben Naceur S. and Ghazouani S. (2007) then empirically establish the impact of financial markets and banks on economic growth.

As a matter of fact, prior to 1990, a country's development was measured by the level of its Gross Domestic Product (GDP). Economic literature analyzing the impact of money on economic development was then specifically concerned with the relationship between money supply and GDP. Some studies show that this relationship is robust and stable (Feldstein and Stock, 1994). In the same vein, other works study the targeting of a nation's nominal income through monetary policy (Hall & Mankiw, 1994). To this end, mention may be made of Bernanke & Blinder (1992), Friedman & Kuttner (1992, 1993a).

Other works have especially focused on the causality between financial development and economic development where two contradictory approaches confront each other. The first approach is that of accompaniment by demand or "**demand following**". It defends the argument that economic development causes financial development. The second approach is that of supply-led training or "**supply leading**", arguing that it is the development of financial institutions (the provision of financial services) that causes economic development. Empirical results obtained through causality test on 27 countries, mostly from the Organization for Economic Co-operation and Development (OECD), confirm that financial development determines economic development (Laroche et al., 1995). Looking at this second approach, our work much emphasizes on the role of liquidity provision on human development.

In addition, empirical works on the implementation of monetary policy oriented towards Nominal Gross Domestic Product financing was carried out by Taylor (1985,1993); McCallum (2004, 1988, 1990); Pecchenino & Rasche (1990); Judd & Motley (1991, 1992); Hess, Small and Brayton (1992). But, following Sen's & Haqi's (1990) works, economic development, despite its composite aspects, has become quantifiable. Human Development Index (HDI) derived from these works was adopted by the United Nations Development Program (UNDP) in 1990, as a new economic development measure. It can therefore be related to monetary variables.

Indeed, money impact is extended to economic development target which is social but quantifiable. Any economic policy which purpose is optimum social welfare (Tinbergen, 1972), monetary policy, although not acting directly on social targets, is also interested in developmental issues in its investigation field. The Central Bank generally pursues growth objectives, full employment, price stability and external equilibrium. But, according to Artus (2001), monetary policy must also be concerned with social objectives. Development represented by the HDI seems to correspond, according to our view, to such a social target. The allocation of financial resources by the Issuing Institute takes this into account.

Debates on the choice of sustainable development indicators show that the definition of the latter is much a matter of ideology and policy than that of a simple technical exercise delegated to experts (Berline & Lapierre, 2009). Indeed, there are tensions between the needs' technical vision for sustainable development indicators and the militant vision of social emergencies (Gadrey, 2009).

Despite some criticisms on the correlation between HDI and GDP (MacGillivray, 1991), the UN recommends the use of sustainable development indicators in national and international[1] economic analysis. Moreover, the need to include an environmental variable in development measure, expressed several times by the international community, has resulted in the development of sustainable development indicator (SDI), which highlights the notion of Ecological footprint (Bouazzaoui, 2008). It is also criticized for its reducing nature by Boisvert & Vivien (2010), hence the green growth initiative launched by the United Nations Environment Program (UNEP), and taken up by the Organization for Economic Cooperation and Development's (OECD) countries.

International[2] civil society proposes alternative development indicators such as the Soft Interior Product (SIP) and the Hard Domestic Expenditure. It is supported by Viveret

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[1] Based on the conclusions of the Earth Summit of Rio de Geneiro (Brazil) in 1992.

[2] The alterglobalists include the Quebec collective "Street Parliament "made of anti-exclusion associations.

(2002), Attali (2010), Stiglitz (2010) and Togtokh Chuluun (2012). Given the growing environmental problems, the UNDP takes up its idea and creates the Sustainable Human Development Index.

Thus, the Attali's report (2013) uses GDP to measure welfare while criticizing it, and in the same vein, Stiglitz (2010) recognizes the weaknesses and limitations of any single indicator in well-being measurement, while Togtokh Chuluun (2012) proposes the integration of ecological considerations in the HDI measurement. GDP, often considered as the first indicator, is still very commonly used to measure sustainable development (especially in Attali's report). In his criticism as concerns GDP used, Sen (1999) finds that this indicator does not reflect individual or collective well-being. However, Kuznets (1955), to whom is attributed the paternity of GDP, acknowledged his indicator's limitations, and did not predispose it to measure a nation's well-being. Its relevance remains debatable with regard to natural resources depletion and biosphere degradation caused by the unbridled production of wealth (Faucheux & Noël, 1995). The majority of authors who are in favor of establishing sustainable development indicators then recognize their need (Fauchaux et al., 2010).

On the other hand, some authors criticize sustainable development measurement through indicators, showing that they are characterized by a chronic lack of vision to account for interactions at various levels (Boulanger et al., 2003). But without questioning the implementation of sustainable development concept through measurable indicators, Roche (2010) remains skeptical as concerns its implementation, due to lack of pressure on the States. Following citizens' awareness manifested by the alterglobalist trend, an ideological opposition has also developed between the technical vision and the militant vision of sustainable development measurement. The first calls for a quick definition of relevant indicators; the second struggles to denounce emergencies and calls for action. The difference between the two is often ideological (Gadrey, 2009).

With the current debate evolution, new development indicators have emerged, notably the Human Sustainable Development Index (HSDI), the Blissful National Happiness (BNH), the Happy Planet Index (HPI) and the Soft Interior Product (SIP). Faced with this multitude of indicators which aim at capturing economic development, we adopted the HDI which international reputation is more established, and the availability of data more perceptible, particularly in some international economic and financial institutions where this indicator is being adopted (UNDP, IMF, World Bank, etc.).

# 3. METHODOLOGY, PRESENTATION OF RESULTS AND DISCUSSION

## 3.1. METHODOLOGY

To assess money effects on real variables under monetary policy impetus, empirical research on monetary policy has often taken three methodological directions (Lavigne & Villieu, 1996). These include structural models, autoregressive vector models (Friedman and Schwartz, 1963), Sims (1980), or qualitative information (Romer & Romer, 1990, 2008). In Mali for instance (one of the poorest countries, with a HDI of 0,42 and which ranked 172 out of 186 in 2015), monetary poverty was tackled from consumption expenditure per households' head. A threshold of 175 513 F.CFA was estimated in 2011, using cost of essential needs methods. As far as non-monetary poverty is concerned, it was measured, using a composite poverty indicator (CPI). Multiple correspondences' analysis was used to elaborate the CPI and the non-monetary threshold from the hierarchical classification (Gacko et al., 2014).

The approach used in our work makes extensive use of qualitative information. It is therefore closer to this third method. However, it uses a cross-sectional analysis in percentage on money supply data of the GDP in 100 countries ranked according to the 2015 HDI. By so doing, it is possible to develop close and stable explanatory relationships between these two indicators, one of which is monetary (M2/GDP) and the other economic (HDI). Our approach is therefore to verify the cause-and-effect relationship between the circulating money supply in an economy and the individual or collective well-being from that economy. Research often calls for correlations to analyze the impact of macroeconomic variables on human development indices. Thus, Cherchye & Kuosmanen (2002) found a strong negative correlation between the ecological footprint and the three indices of human development on the one hand, and a positive correlation of socio-economic indices on the other.

### *3.1.1. Choice of HDI, M2/GDP and VAM2 variables in %*

Human development Index[1] is a composite index that measures the development level of a country by taking into account three criteria: health-longevity, knowledge and living standards. **Health-longevity** is measured by life expectancy at birth; **Knowledge** is valued by the adult's literacy rate and the combined gross enrollment ratio (primary,

[1] The seven comparative indices of development measurement are: the UNDP Human Development Index (HDI), the Human Well-Being Index (HWI), the Ecosystem Welfare Index (EWI), the Healthy Life Expectancy Index (HALE), the Ecological Footprint (EF) and the Ecological Sustainability Indices (ESI1 and ESI2).

secondary, tertiary); **living standard** is calculated by the GDP ratio per capita in purchasing power parity in US dollars.

In its annual report on human development in the world, the UNDP annually ranks countries according to their development level measured by the HDI. This index value is between 0 and 1. Thus, there are four major groups, namely: countries with a very high HDI (0,883 to 1); those with high HDI (0,712 to 0,881); those with average HDI (0,536 and 0,711) and finally those with low HDI (less than 0,535). Countries with high and very high HDI are considered developed, those with average HDI are developing countries; and those with low HDI are least developing countries as illustrated in Table 1 below.

**Table 3.1: Criteria for country classification by development level**

| HDI level | HDI Value | Country Qualification |
|---|---|---|
| Very high HDI | 0,883 and 1 | Very Developed Countries |
| High HDI | 0,712 and 0,882 | Developed Countries |
| Average HDI | 0,536 and 0,711 | Developing Countries |
| Low HDI | 0 and 0,535 | Least Developing Countries |

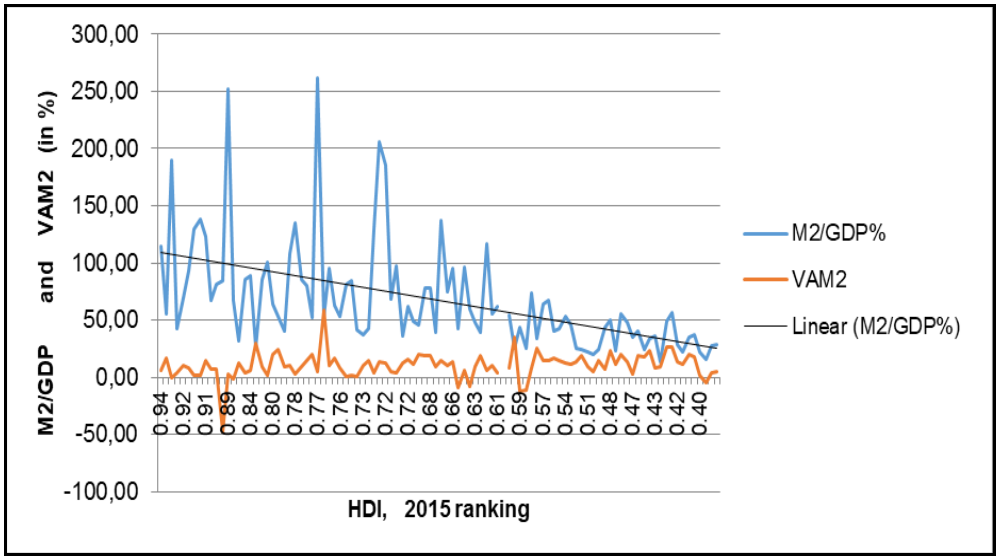
*Sources: Authors, based on UNDP data*

According to Brunner (1968), money supply is the surest indicator to assess the impact of monetary impulse on economy.

## 3.2. RESULTS and DISCUSSION

Graph 1 below shows the results of empirical analysis as far as the relationship between money and HDI is concerned. In fact, the observation of one hundred (100) countries out of the 186 included in the UNDP ranking reveals that the most abundant the macroeconomic liquidity (M2/GDP), the higher the human development index (HDI). In other words, the more liquid a country is, the better its development. Liquidity is therefore a factor of human development. This is because when it is provided, basic needs are met in all countries, especially in developing ones because it helps to improve the living standard accounted for by the HDI. This result confirms that "**generally speaking, in most countries of the world, money provides happiness**".

*Graph 3.1: Evolution of HDI compared to liquidity M2/GDP and M2 variation in 2015*[1]



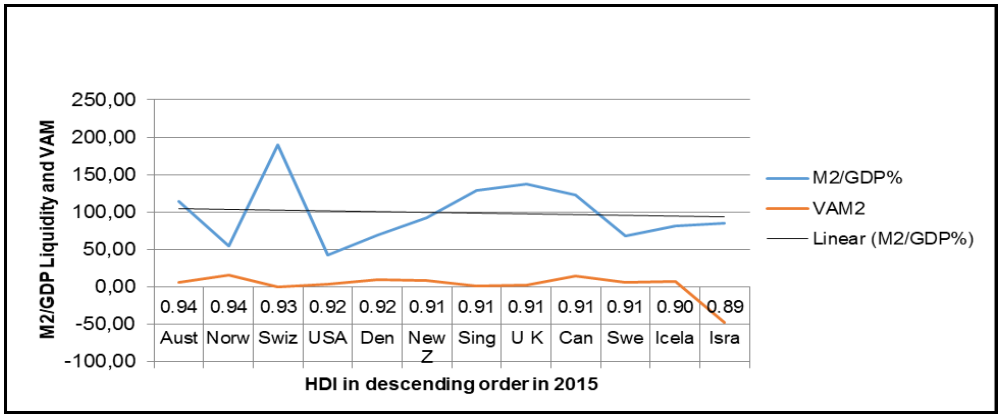

NOTE: On abscissa, and from left to right, is presented in descending order, the HDI ranking of one hundred countries selected in all continents and at all development levels (see appendix).

*Sources: Authors' estimation, based on data from the World Bank, (WDI, 2016) and those of the UNDP.*

On the other hand, graph 2 below shows that in most developed countries and according to their ranking in relation to HDI, the trend line slope of macroeconomic liquidity M2/GDP evolution is lower. This evolution reflects a less robust relationship between money and human development represented here by HDI in developed countries. This result implies that money brings less happiness in developed countries than in other countries of the world. This situation can be explained by the fact that vital goods and services are more available to all in those countries, and people do not necessarily depend on fortunes or monetary holdings held by households. This tendency is weaker compared to the situation in the least developed countries where liquidity holding appears more decisive for human being's welfare. Sometimes, huge amounts of money are spent to access quality goods and services that meet basic needs, and which aim at improving populations' living standard. The same thing goes with health care, housing, access to clean water or better education.

[1] The mention "linéaire M2/GDP" in the legend indicates the trend (or tendency) of the M2/GDP curve.

*Graph 3.2: M2/GDP liquidity and HDI in the 12 most developed countries in 2015*

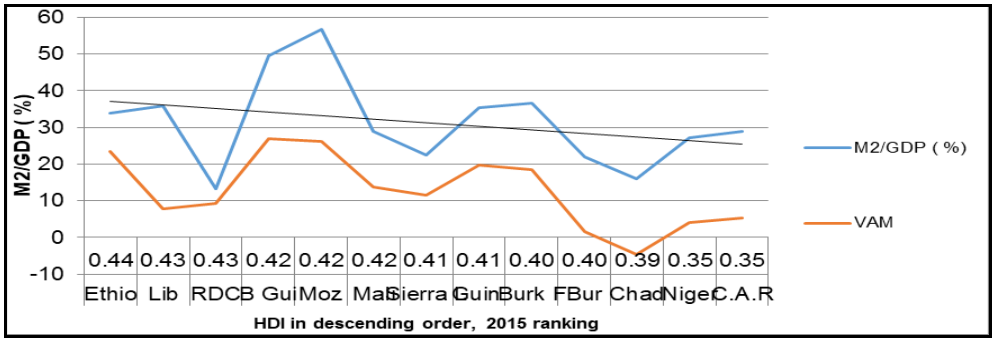



*Sources: Authors' estimation based on data from the World Bank, (WDI, 2016) and those of the UNDP.*

In the world's[1] 13 least developed countries according to HDI ranking as shown in Graph 3 below, the relationship between liquidity and HDI is stronger. This is revealed by the decreasing line strong slope of M2/GDP according to these countries' ranking. This trend confirms poverty among populations, and basic goods and services scarcity which remain inaccessible to most of them whereas sometimes, huge amounts of money are disbursed by these populations, including in corrupt practices. These practices consist in disbursing money to obtain a good or service that could have been free. This is observable during entrance to high schools or high institutes, in hospitals to meet a doctor, in administrations to advance a file or in public real estate companies to obtain a social housing (Yamb & Bayemi, 2015; Yamb & Bayemi, 2016), etc. Households with liquidity develop themselves, and those who do not have enough of it remain in monetary poverty which leads them to be excluded from the living environment that provides raw happiness. From this result, it can be said that "**in least developed (or poorest) countries, money truly can buy happiness"** more than anywhere else in the world.

[1] Except Eritrea which M2/GDP ratio appears atypical, that is, 114.63% is likely to skew the general downward trend of HDI in the poorest countries.

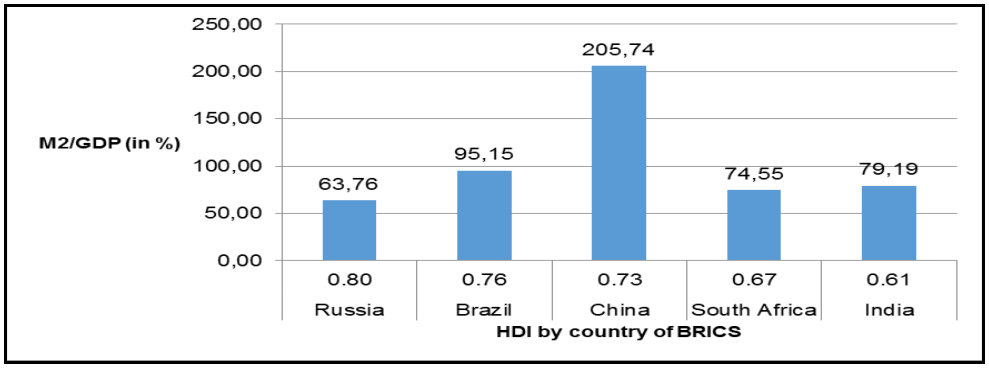
*Graph 3.3: Liquidity M2/GDP, M2 variation and HDI in the 15 poorest countries in 2015*




*Source: Authors' estimation based on World Bank data (WDI, 2016).*

Finally, Graph 4 below shows that in the BRICS[1], the relationship between money supply and HDI is more mitigated because, according to the graph, Russia, the country with the highest ranking among the five, with a high HDI of 0.80 which corresponds to the 48th rank in the world, has a macroeconomic liquidity of 63.76%. The two following countries, Brazil and China, have higher M2/GDP liquidity rates of 95.15% and 205%, respectively, despite a lower HDI than Russia, that is, 0.76 for Brazil and 0.73 for China. South Africa and India with respective liquidity rates of 74.55% and 79.19% lower than those of Brazil and China are actually less developed. But they are less ranked than Russia which is less liquid, but yet, more developed. In these conditions, it can be concluded that **"in the BRICS, money provides more or less happiness".**

*Graph 3.4: Macroeconomic liquidity and HDI in BRICS in 2015*




*Sources: Authors' estimation based on World Bank data (WDI, 2016).*

[1] BRICS stands for Brazil, Russia, India, China, and South Africa.

This mitigated result can be explained by two reasons. Firstly, the BRICS constitute a group of heterogeneous countries, given their fairly dispersed HDI levels, ranging from 0.80 for Russia and 0.61 for India. Secondly, these five (5) countries, scattered in different continents (Asia, South America, Africa), have various economic realities that cannot be reflected only in HDI and money supply relative to GDP. The particular case of China reveals that this country abounds with plentiful liquidity, certainly due to its enormous foreign exchange reserves, result of a flourishing foreign trade which leads to an M2/GDP liquidity ratio of 205%. This result is distinct from that of other two groups of countries studied (developed and developing countries), where the latter are very close given their development level. Such analysis reveals HDI limitations to measure and compare the level of development in a group of countries with heterogeneous economies.

The table below shows various correlations between monetary variables and HDI rank. These correlations are all but higher as the rank is better (a low rank value implies a better country ranking, hence the negative correlations observed). In fact, the negative sign reflects the fact that the higher the liquidity, the lower the ranking number (but, which represents a better classification). Among the most developed countries, HDI is higher the more as the country is liquid. The correlation between rank and HDI for the 12 most developed countries which is 0.14 (in absolute value) is lower than that of the 15 least developed countries which is 0.25 (in absolute value). These results confirm the trend revealed by the above graphs and converge towards the idea that money provides much happiness in least developed economies than in most developed ones. At the microeconomic level, consumption theory shows that money marginal utility is higher for low-income consumers. This analysis finds macroeconomic confirmation in this framework. Thus, money makes the poor happier than the rich.

**Table 3.2: Correlations between money and HDI ranking in 2016**

| Variables | HDI ranking in 2015 Rich countries | HDI ranking in 2015 Poor countries | HDI ranking in 2015 All |
|---|---|---|---|
| | | | |
| M2 | **-0.15** | -0.04 | **-0.03** |
| M2/GDP | **-0.14** | **-0.25** | **-0.51** |
| VAM2 | **-0.53** | **-0.58** | 0.20 |

*Sources: Authors' estimation based on World Bank data (WDI, 2016).*

## 4. CONCLUSION

This study aimed at verifying the nature of the relationship between money and economic development. The conventional economic literature examines this relationship without highlighting the role of macroeconomic liquidity M2/GDP on the most common development indicator currently used: the Human Development Index. The main innovation of our analysis lies in the implementation of this link on one hundred (100) countries among the 186 classified by the UNDP according to HDI criterion in 2016. Three main conclusions emerge from our study: (i) there is a positive and robust relationship between macroeconomic liquidity (M2/GDP) and Human Development Index in most countries of the world; (ii) this relationship is more intense in the 15 least developed countries of the world; (iii) liquidity poorly affects HDI in most developed countries, whereas this relationship is more mitigated in the BRICS. Our results allow us to recommend an increase in financial deepening, an improvement in the transmission of monetary policy to real economy and the integration of human development as ultimate goal of monetary policy strategies. We have been able to establish that "money can buy happiness" much more in poor countries than in rich ones. This relationship might be boosted in long term by an adequate monetary creation driven by monetary policy. This is a reflection for new prospects insofar as monetary policy is cyclical, whereas economic development is a long-term phenomenon. The link between money and human development appeared more robust in the case of the poorest countries. We therefore recommend that the governments of these countries improve the level of income of the populations to enable them to access the basic social services that are represented in the HDI (education, health), in order to enable households to raise their level of life. In the other countries (developed and BRICS) it is necessary to consolidate the facilities for access to social services in order to appease the nationalisms which are increasingly manifested by social demands and the rise of political extremism. In perspective, it remains to establish the relationship between monetary policy and human development.

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## APPENDICES

### Table 1: The 100 countries' ranking according to HDI, M2 / GDP, M2 variation and M2

| 2015 Ranking | Countries | HDI | M2/GDP % | VAM2 | M2 |
|---|---|---|---|---|---|
| 1 | Australia | 0.94 | 114.40 | 6.15 | 1 841 875 048 748 |
| 2 | Norway | 0.94 | 55.08 | 16.30 | 1 220 098 517 555 |
| 3 | Switzerland | 0.93 | 189.45 | 0.08 | 1 211 971 015 707 |
| 6 | USA | 0.92 | 42.24 | 3.44 | 16 210 453 403 994 |
| 7 | Denmark | 0.92 | 69.31 | 9.91 | 1 376 437 000 000 |
| 9 | New Zealand | 0.91 | 92.66 | 8.36 | 188 494 320 895 |
| 10 | Singapore | 0.91 | 129.27 | 1.52 | 520 240 300 000 |
| 11 | UK | 0.91 | 137.77 | 1.94 | 2 568 989 000 000 |
| 12 | Canada | 0.91 | 122.95 | 14.92 | 2 032 249 287 000 |
| 14 | Sweden | 0.91 | 67.62 | 6.65 | 2 809 663 000 000 |
| 16 | Iceland | 0.90 | 81.75 | 6,72 | 1 789 974 101 975 |
| 19 | Israel | 0.89 | 84.90 | -47.91 | 976 972 745 043 |
| 21 | Japan | 0.89 | 251.92 | 3.09 | 1 257 343 300 000 000 |
| 29 | Brunei Darussalem | 0.86 | 67.44 | -1.76 | 14 365 355 864 |
| 30 | Estonia | 0.86 | 31.68 | 12.47 | 2 758 698 897 |
| 33 | Qatar | 0.85 | 85.82 | 3.44 | 521 383 060 000 |
| 34 | United Arab Emirates | 0.84 | 88.65 | 5.65 | 1 205 577 000 000 |
| 39 | Argentina | 0.84 | 26.64 | 29.85 | 1 179 225 040 000 |
| 41 | Chile | 0.83 | 85.16 | 9.15 | 133 816 655 723 051 |
| 46 | Kuwait | 0.82 | 100.43 | 1.40 | 34 090 905 800 |
| 48 | Russia | 0.80 | 63.76 | 19.73 | 51 523 000 000 000 |
| 51 | Uruguay | 0.79 | 53.35 | 23.82 | 779 139 704 513 |
| 53 | Roumania | 0.79 | 40.16 | 9.39 | 286 251 725 294 |
| 57 | Mauritius | 0.78 | 108.54 | 10.17 | 437 998 584 080 |
| 58 | Malaysia | 0.78 | 135.12 | 3.4 | 1 563 128 301 252 |
| 59 | Bulgaria | 0.78 | 85.64 | 8.77 | 73 967 330 000 |
| 61 | Panama | 0.78 | 79.93 | 14.58 | 19 600 780 799 |
| 68 | Iran | 0.77 | 52.10 | 20.17 | 3 274 646 800 000 000 |
| 69 | Lebanon | 0.77 | 262.08 | 5.06 | 186 095 008 800 000 |
| 70 | Venezuela | 0.76 | 52.90 | 58.84 | 1 187 995 168 359 |
| 71 | Brazil | 0.76 | 95.15 | 10.80 | 5 618 182 638 942 |
| 72 | Turkey | 0.76 | 63.11 | 16.51 | 1 232 870 914 520 |
| 73 | Mexico | 0.76 | 53.20 | 8.28 | 9 648 486 532 199 |
| 82 | Algeria | 0.74 | 81.58 | 0.30 | 13 704 511 417 483 |
| 83 | Albania | 0.73 | 84.42 | 1.93 | 1 218 124 880 629 |
| 86 | Peru | 0.73 | 41.25 | 1.17 | 252 429 113 856 |
| 87 | Armenia | 0.73 | 36.76 | 10.84 | 1 855 676 489 934 |
| 88 | Ecuador | 0.73 | 42.80 | 14.94 | 43 191 756 733 |
| 89 | Thailand | 0.73 | 129.66 | 4.42 | 17 552 805 782 327 |
| 92 | China | 0.73 | 205.74 | 13.34 | 139 227 813 190 717 |
| 93 | Libya | 0.72 | 185.28 | 12.51 | 75 078 100 000 |

| 2015 Ranking | Countries | HDI | M2/GDP % | VAM2 | M2 |
|---|---|---|---|---|---|
| 94 | Tunisia | 0.72 | 68.59 | 5.36 | 57 873 018 000 |
| 95 | Dominica | 0.72 | 97.29 | 3.52 | 1 412 675 000 |
| 97 | Dominican Republic | 0.72 | 36.10 | 12.07 | 1 091 477 494 494 |
| 98 | Jamaica | 0.72 | 61.61 | 15.61 | 1 008 637 514 000 |
| 99 | Colombia | 0.72 | 49.23 | 11.42 | 394 230 174 894 183 |
| 105 | Botswana | 0.70 | 45.94 | 19.88 | 66 941 123 575 |
| 106 | Egypt | 0.69 | 78.44 | 18.60 | 1 905 896 869 795 |
| 111 | Gabon | 0.68 | 78.44 | 18.60 | 1 905 896 869 795 |
| 112 | Indonesia | 0.68 | 39.41 | 9.00 | 4 548 800 392 762 800 |
| 113 | Vietnam | 0.67 | 137.65 | 14.91 | 5 771 436 493 824 790 |
| 114 | South Africa | 0.67 | 74.55 | 10.32 | 2 975 276 448 350 |
| 118 | Bolivia | 0.66 | 95.05 | 13.14 | 218 038 615 945 |
| 119 | Iraq | 0.65 | 42.82 | -9.03 | 84 271 891 000 000 |
| 120 | Green cap | 0.65 | 96.85 | 6.24 | 156 929 368 376 |
| 122 | Guyana | 0.64 | 60.22 | -7.83 | 393 741 972 042 |
| 123 | Guatemala | 0.63 | 48.00 | 9.09 | 234 399 381 030 |
| 124 | Nicaragua | 0.63 | 39.05 | 18.96 | 135 107 620 766 |
| 125 | Morocco | 0.63 | 117.15 | 5.69 | 1 148 038 759 504 |
| 126 | Namibia | 0.63 | 55.63 | 10.19 | 81 944 945 250 |
| 128 | Bhutan | 0.61 | 61.86 | 3.89 | 77 875 597 188 |
| 129 | India | 0.61 | 79.19 | 10.62 | 107 437 472 176 400 |
| 130 | Honduras | 0.61 | 54.75 | 7.80 | 243 804 970 946 |
| 132 | Zambia | 0.59 | 25.72 | 35.19 | 47 262 134 734 |
| 133 | Congo | 0.59 | 44.14 | -11.71 | 2 232 853 000 000 |
| 134 | Equatorial Guinea | 0.59 | 24.95 | -10.93 | 1 386 845 000 000 |
| 135 | Vanuatu | 0.59 | 73.81 | 8.59 | 58 391 210 337 |
| 138 | Ghana | 0.58 | 33.67 | 25.57 | 47 111 533 198 |
| 140 | Bangladesh | 0.57 | 64.51 | 14.89 | 9 778 287 000 000 |
| 141 | Cambodia | 0.56 | 66.87 | 15.11 | 49 097 068 545 310 |
| 142 | Sao Tome and P | 0.56 | 40.25 | 16.80 | 2 508 002 223 966 |
| 143 | Kenya | 0.55 | 42.18 | 14.16 | 2 625 659 346 892 |
| 146 | Pakistan | 0.54 | 53.45 | 12.35 | 14 637 380 707 941 |
| 147 | Angola | 0.53 | 46.35 | 11.78 | 5 711 899 207 271 |
| 148 | Swaziland | 0.53 | 25.52 | 13.58 | 13 219 080 428 |
| 149 | Tanzania | 0.52 | 24.74 | 18.81 | 22 114 621 563 876 |
| 150 | Cameroon | 0.51 | 21.82 | 8.80 | 3 767 328 000 000 |
| 151 | Nigeria | 0.51 | 20.16 | 5.01 | 18 173 830 311 616 |
| 154 | Madagascar | 0.51 | 24.51 | 15.18 | 7 175 535 192 736 |
| 160 | Benin | 0.48 | 43.34 | 7.35 | 2 172 480 700 000 |
| 162 | Haiti | 0.48 | 50.11 | 23.77 | 215 990 294 181 |
| 164 | Ouganda | 0.48 | 22.89 | 11.66 | 17 069 551 147 455 |
| 165 | Togo | 0.48 | 55.58 | 20.26 | 1 315 724 000 000 |
| 167 | Senegal | 0.47 | 48.42 | 13.30 | 3 945 856 900 000 |
| 169 | Afghanistan | 0.47 | 35.18 | 3.30 | 414 819 480 257 |
| 170 | Ivory Coast | 0.46 | 40.26 | 19.13 | 7 561 284 100 000 |
| 171 | Malawi | 0.45 | 23.98 | 18.05 | 616 153 239 960 |
| 173 | Ethiopia | 0.44 | 33.97 | 23.39 | 84 987 957 703 |

| 2015 Ranking | Countries | HDI | M2/GDP % | VAM2 | M2 |
|---|---|---|---|---|---|
| 174 | Liberia | 0.43 | 35.96 | 7.86 | 738 164 711 |
| 175 | D R of Congo | 0.43 | 13.23 | 9.39 | 4 315 292 288 168 |
| 176 | Bissau Guinea | 0.42 | 49.55 | 26.80 | 309 751 000 000 |
| 177 | Mozambique | 0.42 | 56.78 | 26.09 | 333 464 607 637 |
| 178 | Mali | 0.42 | 28.89 | 13.81 | 2 238 306 200 000 |
| 179 | Sierra Leone | 0.41 | 22.44 | 11.66 | 5 101 325 667 279 |
| 180 | Guinea | 0.41 | 35.46 | 19.64 | 17 783 953 556 200 |
| 181 | Burkina Faso | 0.40 | 36.71 | 18.41 | 2 409 910 100 000 |
| 182 | Burundi | 0.40 | 21.94 | 1.52 | 1 061 261 300 000 |
| 183 | Chad | 0.39 | 15.95 | -4.70 | 1 027 048 000 000 |
| 185 | Niger | 0.35 | 27.22 | 4.02 | 1 149 891 200 000 |
| 186 | CAR | 0.35 | 28.99 | 5.30 | 257 779 000 000 |

*Sources: Authors, based on UNDP data and those of the World Development Indicators (WDI, 2016)*

**Table 2: Correlations between HDI ranking and monetary liquidity of the 15 poorest countries in 2016**

| | M2 | M2/GDP | 2015 HDI RANKING | VAM2 |
|---|---|---|---|---|
| **M2** | 1 | -0.0003 | -0.036 | 0.18 |
| **M2/GDP** | -0.0003 | 1 | -0.25 | 0.75 |
| **HDI RANKING** | -0.037 | -0.25 | 1 | -0.58 |
| **VAM2** | 0.18 | 0.76 | -0.58 | 1 |

*Sources: Authors, using World Bank data*

**Table 3: Correlations between HDI ranking and monetary liquidity of the 12 most developed countries in 2016**

| | 2015 RANKING | M2 | M2/GDP | VAM2 |
|---|---|---|---|---|
| **2015 RANKING** | 1 | -0.15 | -0.14 | -0.53 |
| **M2** | -0.15 | 1 | -0.43 | 0.058 |
| **M2/GDP** | -0.14 | -0.43 | 1 | -0.043 |
| **VAM2** | -0.53 | 0.058 | -0.042 | 1 |

*Sources: Authors, using World Bank data*