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The IMF quota formula review: opportunities for BRICS and developing world

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Abstract

In January, 2016 the IMF reform agreed in 2010 under the G20 Seoul Summit was formally adopted. According to the results of the reform, the cumulative quota for emerging and developing countries (EMDCs) has acquired 38,7 per cent,with an increase of 2,1 percentage points (36,6 per cent previously)[1].Along with it, the Seoul Action Plan implied further growth of EMDCs representation by amending the quota formula and taking the 15th General Quota Review upon that. However, at present time, after dangers caused by the global financial crisis have passed, advanced economies with the US at the forefront are trying to obstruct the new quota formula negotiation process and to downgrade the quota significance. Within this framework, BRICS and other EMDCs should stand for tangible quota formula review in order to prevent it from turning into formality.

Current quota distribution order should be transformed drastically on the basis of a clear and fair mechanism which is to be worked out. This makes possible for EMDCs to take position in the IMF governance structure relevant to their actual weight in the global economy. Expert community of the BRICS member countries should be also engaged in this process to work out scientific justification of all changes being proposed.

Starting the discussion, this research paper introduces a new pattern of using quota formula variables. The report's authors invite experts from BRICS member countries and other EMDCs to express their views on the questions raised.

[1] The IMF uses two different ways of classifying states as EMDCs (emerging market and developing countries). According to the first one (including quota share distribution list), Czech Republic, Estonia, Latvia, Lithuania, Malta, Republic of Korea, Singapore, Slovak Republic and Slovenia are defined as EMDCs. Within the other IMF methodology, which is particularly used in annual World Economic Outllok (WEO), these countries are integrated to "advanced economies" group.

The first approach appears to be largely factitious: developing countries receive overestimated quota share due to integrating with states that actually stay away from the EMDC status. Within this framework, the WEO methodology was used in the report because of its higher relevance to actual weight of EMDCs in the cumulative quota.

Prospects of further IMF reform

The 2010 reform agreed at the Seoul G20 summit became a sort of litmus test showing the attitude of the Western countries to the increasing role of EMDCs in the world economy. It took several years to approve at the national level and to effect a unified package of amendments regarding the IMF's capital increase, quota redistribution and changing the procedure for election of the IMF Executive Board's members.

Such a long wait was primarily caused by inconsistent US position. During the crisis of 2008-2009, the United States were forced to make significant concessions to EMDCs by agreeing with the increased role of the G20 on the international scene and the extensive program of international financial architecture reform, including changes in the management system of Bretton Woods institutions. With the stabilization of the economic situation, Washington for 5 years refused to ratify the IMF reform, despite the numerous appeals by representatives of the developing economies, G20 and the IMF itself. As a result, the budget deal between the Democratic President Barack Obama and the Republican majority in the US Congress, which provided a way to implement the IMF reform in December 2015, was seen by many as a "historic step"[1] and final implementation of the Seoul Action Plan, which is not quite true.

In accordance with the Seoul Action Plan, one of the components of the IMF reform was supposed to be "continuing the dynamic process aimed at enhancing the voice and representation of emerging market and developing countries, including the poorest, through a comprehensive review of the quota formula…to better reflect the economic weights; and through completion of the next general review of quotas"[2]. However, difficulties in the implementation of the amendments almost paralyzed work on the new quota formula's development and de facto excluded this issue from the so-called "package of 2010 reform".

Mainly this was facilitated by the position of the IMF executives and its major shareholders – the Western countries – aimed to curb the developing economies' initiatives. In January 2013, the IMF drastically changed (compared to as defined in Seoul) the proposed procedure for implementation of the amendments to the formula and further review of quotas in the Executive Board's report. In the IMF's interpretation, approval of a new quota formula was an integral part of work on the 15th General Quota Review[3], thereby depriving this stage of the reform of its individuality, designed to make it an independent factor in ensuring the interests of the EMDCs in the IMF. This position of the IMF was "fixed" in subsequent years.[4] The lack of progress was justified by the impossibility to discuss this issue before the implementation of the "package of 2010 reform".

The IMF 2013 Report is also notable for the fact that it specified the views of the directors of the Executive Board who considered that it is reasonable to continue using the current quota formula based on the fact that it provides sufficient opportunity for a fair distribution of votes. As an argument, the IMF pointed out that the aggregate calculated quota share of EMDCs had increased by 7.7 percentage points under estimates as of 2010 compared with the data for

2005 that was used for the calculation in the 14th General Quota Review.

Steps aimed at limiting the positions of EMDCs in the IMF, including the decrease of the significance of the new quota formula as a tool to protect their interests, were also taken later. For instance, press communique of the 33rd meeting of the International Monetary and Financial Committee held in April 2016, is noteworthy for the fact that it determined as the main purpose of the 15th General Quota Review (part of which has traditionally provided for the IMF quota formula amendment) "increases in the quota shares of **dynamic economies**"[6]. That is obviously different from the views of G20 countries provided by the Seoul Action Plan in 2010 that set a challenge for "enhancing the voice and representation of **emerging market and developing countries**"[7].

Advanced countries' disinterest in further IMF reform determined low activity of the Fund. Over the past six months after abolishing "the U.S. veto", the IMF did not put forward any new initiatives or additional proposals concerning amendments to its management system. Consequently, such "technical" element as the quota formula became one of the few opportunities for EMDCs to ensure further changes in the IMF so that "emerging and developing economies [received] greater voice and representation"[8].

In their turn, the Western countries desire to slowdown the solution of this issue. At the beginning of 2016, its adoption was postponed for at least a year and a half based on the IMF statement of January 2016 claiming that agreement on 15th General Review is not possible until the autumn of 2017.[9] Moreover, in March 2016, Ms Lagarde spoke again of "a breathing space" and a slowdown between the 14th and 15th General Quota Reviews.[10]

The historical genesis of the IMF quota formula

Correspondence of the IMF member countries' quotas with their role in the world economy is generally accepted and hardly criticized either by individual countries or experts engaged in the study of the matter. However, existing methodological approaches and economic variables used within their framework allow different evaluation of a weight and role of certain countries. These approaches leading to an increase or decrease in the number of votes of any IMF member country are still subject to diplomatic battles and heated debate among the academic community. As many experts note, the quota change process is a "zero-sum" game where a gain for some countries inevitably turns into a loss for the others that is why they are extremely reluctant in conceding a part of their quota in favor of the other EMDCs.[11]

GDP is currently the most obvious variable for assessing the role of a country in the world economy. However, from the perspective of the quota formula's history, in the early period of the IMF's activity such variables as export and import volume had greater importance. Thus, the original quota formula adopted at the Bretton Woods conference in 1944 was as follows: Fig. 1.

An important feature of the formula at the moment of formation of the IMF, as well as later, was that

$$Q = (0.02Y + 0.05R + 0.010M + 0.10V)(1 + X/Y),$$

where:

Q = Calculated quota

Y = National income

R = Gold and foreign-exchange reserves

X = Average annual exports (5-year average)

M= Average annual imports (5-year average)

V = Maximum fluctuation in exports over a 5-year period.

Fig. 1: Quota formula from 1944 to 1962.
(Source: Report to the IMF Executive Board of the Quota Formula Review Group. 2000. April 28).

it had never played a fundamental role in determining actual quotas of the IMF member countries. The original formula, as noted by some authors, was designed to use economic variables to fulfill political tasks of the US administration, namely to provide the United States with the highest quota; the UK and its colonies with twice smaller quota; the USSR with a quota slightly less than the UK's one; and China with a quota slightly less than the USSR's one.[12] Hence, only the difference of the United States and the UK between the calculated and the actual quota was negligible out of 45 countries attended the Bretton Woods conference. For other countries, the difference (including situations with larger as well as lower difference) reached 75 per cent.

Therefore, this formula had no official status, served as a recommendation and was used to "provide some guidance to the delegates at the Bretton Woods conference in determining the distribution of quotas among the original participants".[13] Later the formula was taken into account only at the admission of new members and the IMF staff recommended to specify certain amount of admission quota based on such formula. The amount of the actual quota was determined in the course of political negotiations between the candidate and leading IMF shareholders, and continued to be greatly different from the estimated amount. Over time, due to the implementation of the general quota reviews, there was an alignment of the actual and calculated amount, although one hundred percent compliance had not been achieved.

In 1962-1963 the IMF began to use the new principles for the calculation of quotas. The original Bretton Woods formula was supplemented by four others. In practice, quotas of the largest shareholders continued to be calculated according to the old formula, while new formulas were used only for developing countries. In 1983, the IMF improved the system of five formulas. They were slightly simplified, and the weight of the certain components was redistributed (Fig. 2). GDP was used for the first time, while reserves were again applied to calculate the quotas of all IMF member countries, although the influence of both elements on the final amount of the calculated quota was negligible.

$$Q1 = (0.01Y + 0.025R + 0.05P + 0.2276VC)(1+ C/Y),$$

$$Q2 = (0.0065Y + 0.0205125R + 0{,}078P + 0.4052VC)(1 + C/Y),$$

$$Q3 = (0.0045Y + 0.03896768R + 0{,}07P + 0.76976VC)(1 + C/Y),$$

$$Q4 = 0.005Y + 0.042280464R + 0{,}044(P + C) + 0.8352VC,$$

$$Q5 = 0.0045Y + 0.05281008R + 0.039(P+C) + 1.0432VC,$$

$$Q = \max(Q1, \text{mean of lowest 2 of } Q2, \ldots, Q5),$$

where:

Y = GDP at market prices in a recent year;

R = Average value of gold, SDRs, and foreign exchange reserves in a recent year;

P = Average annual current payments (goods, services, income, and private transfers) over a recent five-year period;

C = Average annual current receipts (goods, services, income, and private transfers) over a recent five-year period;

VC = variability of current receipts, defined as one standard deviation from the centered five-year moving average, from a recent 13-year period.

Fig. 2: Quota formula from 1983 to 2011.
(Source: Report to the IMF Executive Board of the Quota Formula Review Group. 2000. April 28).

Current IMF quota formula

By the end of the XX century, the countries with the growing economic influence began to pay an increasing attention to the discrepancy between their real weight in the world economy and representation in the IMF. Their position on the unfairness of the existing quotas was a long-term threat to the credibility of the IMF and its effectiveness.

As a response to the criticism, the IMF executives proposed to develop a better quota system by making changes in the formula. According to the IMF, the new quota formula was subject to such requirements as simplicity and transparency, as well as better reflection of relevant position of the IMF member countries in the world economy. An important role should have been given to GDP with keeping other variables previously used, such as "openness".

In 1997 the IMF formed the Quota Formula Review Group (QFRW) for preparing an independent assessment of the proposed amendments. The group was headed by an American scholar, Professor Richard Cooper at Harvard, and comprised 7 more experts from the IMF member countries. The group did a great work, having considered a significant number of possible variables of the formula, and published the results in 2000. One of the main conclusions of "Cooper Report" was validation of using only two variables of the formula: the GDP at market exchange rates and the variability of current receipts. Exclusion of other variables was due to their high correlation with the two proposed by QFRW, especially GDP.

However, some experts criticized Cooper's position, namely due to insufficient consideration of Purchasing Power Parity (PPP) and overestimation of the variability's role. It is noteworthy that the use of GDP (PPP) was proposed not only by representatives of EMDCs, but also by Western experts.[14] The result of further discussions was the decision to apply a so-called "blended GDP" comprising 60 per cent of GDP at market exchange rates and 40 per cent of GDP (PPP).[15] This approach was a compromise between the major shareholders of the IMF and the emerging and developing economies which considered GDP (PPP) as a more fair accounting method.

In addition to GDP (with weight of 50 per cent), the formula comprised openness (30 per cent), variability (15 per cent) and international reserves (5 per cent)[16](Fig. 3). These amendments were implemented in course of the 2008 reform, and entered into force in 2011. However, during the discussion process and henceforth the formula was subject to criticism from the expert community and the majority of EMDCs. They continued to view it as extremely favorable to the interests of the West, in particular the EU member states.

With the absence of a consensus on the formula applicable since 2011, numerous proposals were raised for its amendment. They related both to the review of the balance between certain variables and the exclusion of variables included in the formula, particularly openness and variability considered as a poorly based and least transparent.

Researches of the IMF (as previously in "Cooper Report") point to the high correlation of such variables of the formula as openness, variability and GDP. Particularly, 2015 report noted that the correlation between openness and GDP amounts to 0.93 and the correlation between variability and GDP amounts to 0.94.[17] Meanwhile, the correlation between GDP and reserves is much lower and on average amounts only to 0.6, while even lower — 0.3 — in case of the advanced economies.[18]

Special attention should be paid to researches related to the variable of openness. The IMF methodology takes into account the ongoing single currency trade within the economic and monetary union as "foreign", which offers significant advantages to quite narrow group of the IMF member countries (represented mainly by the EU member states). However, trade in Europe often has a technical nature. In some cases, it involves the movement of semi-finished products and components between the branches of multinational corporations, distant from each other by only a few kilometers, but at the same time located in different jurisdictions. Such internal corporate "division of efforts" contributes to significant increase in "openness" of the European countries.

This fact was emphasized by US experts indicating that the openness variable had "biased" nature and should be excluded from the formula.[19] Certain European experts, also consider possible not to use this variable, as well as variability.[20]

In contrast, ECB experts positively view "openness" variable and consider it to be consistent with one of the main IMF objectives (development of the international trade) and showing the willingness of a country to cooperate. Moreover, they view such variable as generally understood by a broad audience.[21]

ECB experts noted that variability in the current formula, by contrast,

$$CQS = (0.5*Y + 0.3*O + 0.15*V + 0.05*R)^k$$

where:
CQS = calculated quota share;
Y = a blend of GDP converted at market exchange rates and PPP exchange rates averaged over a three year period. The weights of market-based and PPP GDP are 0.60 and 0.40, respectively;
O = openness that is the annual average of the sum of current payments and current receipts (goods, services, income, and transfers) for a five year period;
V = variability of current receipts and net capital flows (measured as the standard deviation from a centered three-year trend over a thirteen year period);
R = twelve month average over one year of official reserves (foreign exchange, SDR holdings, reserve position in the Fund, and monetary gold);
In addition to the mentioned variables, the formula also includes compression factor (k) of 0.95. It reduces the variance of the estimated proportion of quotas among the IMF member countries and in some way reduces the share of major shareholders.

Fig. 3: Quota formula from 2011.
(Source: Quota Formula Review – Initial Considerations. 2012. February 10. P. 6)

is calculated at random, "not intuitive and…could even be seen as rewarding volatile policies or market developments".[22] As a result, this variable of the formula, according to the ECB research, favours developed economies having significant trade volumes and substantial market fluctuations accordingly (in fact, the ECB experts were just stopped in one step from the statement of the fact that these states are EU members).

It should be pointed out that from the very beginning all the arguments in favor of variability and openness were based on the recognition of the fact that it was crucially important to reflect the IMF member countries' "vulnerabilities" indicating the potential of their application for financial aid from the IMF. Such argument was used in Cooper Report to explain the need to maintain significant weight of variability in the formula. According to the QFRW, "[T]he single most relevant variable for measuring a country's vulnerability to external economic disturbances is the variability of its international receipts".[23] A similar argument can be found in other researches regarding both variability and openness.[24] However, recent IMF studies refute this argument and show low correlation of both variables with the actual applications for financial aid from the IMF member countries.[25] Including openness and variability as economic vulnerability indicators into the formula was also reasoned by a multifaceted role of quotas. In accordance with the IMF's Articles of Agreement, it determines not only the amount of financial contribution and the number of votes, but also the maximum possible amount (limit) of loans in case of application to the IMF for financial aid. It was supposed to provide a higher quota to potentially vulnerable countries in order to increase the facility limit by strengthening the role of openness and variability variables in the formula.

At the same time, the importance of this factor, in our opinion, is reducing increasingly. Thus, according to the current provisions, the limit for the purposes of "stand by" loan agreement is 200 per cent of quota per year and 600 per cent for the total funding.[26] In practice, the IMF (with the largest shareholders' consent) may decide to waive the formal restrictions when necessary, which is presented as "an exception". For instance, the agreement with Ukraine provides for funding in the amount of 900 per cent of the Ukrainian quota (over $17.5 billion for 4 years), and the loan to Greece was approved at a level of about 3000 per cent.[27]

Approaches to the new IMF quota formula

Conclusions of the current quota formula discussion were drawn in the IMF`s report presented in July 2015.[28] It states that coordination of the positions of the Directors representing the IMF's Executive Board resulted in the following:

- GDP shall remain as the main variable of the formula having the greatest overall weight, with the possibility to be increased in the future (as all the Executive Board's members consented);
- Openness continues to play an important role in determining the amount of the quota; all the doubts concerning openness require additional examination;
- Variability may be excluded from the formula (some Executive Board's members conditioned their consent on how the variability's weight would be distributed between the other variables in the formula);
- Reserves (with regard to their current weight in the formula) have considerable support of the Executive Board's members.

The report also noted that the IMF's framework should further include the research of GDP (PPP) growing role in the formula, as well as the possibility of voluntary contributions to the IMF capital as part of the 15th General Quota Review.

At the same time, the report demonstrates that the IMF member countries do not quite agree on how to use one or another variable. Contradictions exist not only between the developing and developed countries, there is no good understanding among the developed countries as well. Thus, European countries are interested in keeping openness in the formula, since it gives them a disproportionate advantage over other countries (therefore, European representatives more actively spoke in favor of openness variable during the 2016 IMF's Spring Meeting[29]). However, they agreed to support the refuse to use variability, but only if its weight in the formula will be redistributed in favor of openness. Meanwhile, the Fund's estimates demonstrate that the United States could maintain its 15 per cent voting share only if GDP weight is increased.[30]

In these circumstances, EMDCs need to form a unified stance on the revision of the quota formulas. The BRICS countries have already agreed to stand united, said the Russian Minister of Finance Anton Siluanov.[31] The BRICS opinion is based on the belief, that in order to ensure the interests of the developing economies, GDP (PPP) shall have the largest overall weight in the formula.

The BRICS' opinion focuses on how to bring GDPs of individual countries denominated in their national currencies, to a common standard. Current market exchange rate is usually used for this purpose. However, in the most cases national currencies of the developing countries are undervalued to the US dollar, used as international standard. This results in undervaluation of their share in world's GDP. Therefore, it is justified to use GDP (PPP).

Previously, the key objection to the use of GDP (PPP) was the complexity and lack of precision in calculations. As a result, in the current formula 60 per cent of the weight is attributed to GDP at the current market exchange rates. However, as time goes by, the methodology and the statistical basis for the calculation of PPP are being steadily improved, and that enables EMDCs now to insist on the PPP's weight increase. In the future, GDP (PPP) should be the only basis for the calculation of GDP in the formula. In the future, GDP (PPP) should be the only basis for the calculation of GDP in the formula.

However, it appears to us that the use of GDP only for the IMF quota formula calculation is not enough. Under current conditions, when the total value of assets traded on the financial markets is several times higher the amount of the countries' GDPs,[32] it is necessary to take into account the resilience of the Fund's member-countries to global financial shocks.

International reserves are traditionally considered as a financial stability indicator. They are formed from the excess of receipts over the payments under the balance of payments' (BoP) current account, and used to mitigate the adverse changes in both foreign trade and capital flows. Unlike the variability responsible for assessing the economy's ability to absorb external shocks, international reserves take into account not only the currency inflow, but also, more importantly, the currency outflow from the country. The 1997 and 2008–2009 world crises showed that the financial shocks could be caused not as much by the lack of currency receipts, as by the "capital flight" in conjunction with the decrease in currency flows from abroad.

Today there is much rhetoric about the excessive reserves accumulated by developing countries, to justify the refusal to increase the reserves' weight in the quota formula. However, this argument ignores the fact that accumulation is largely induced, and the funds

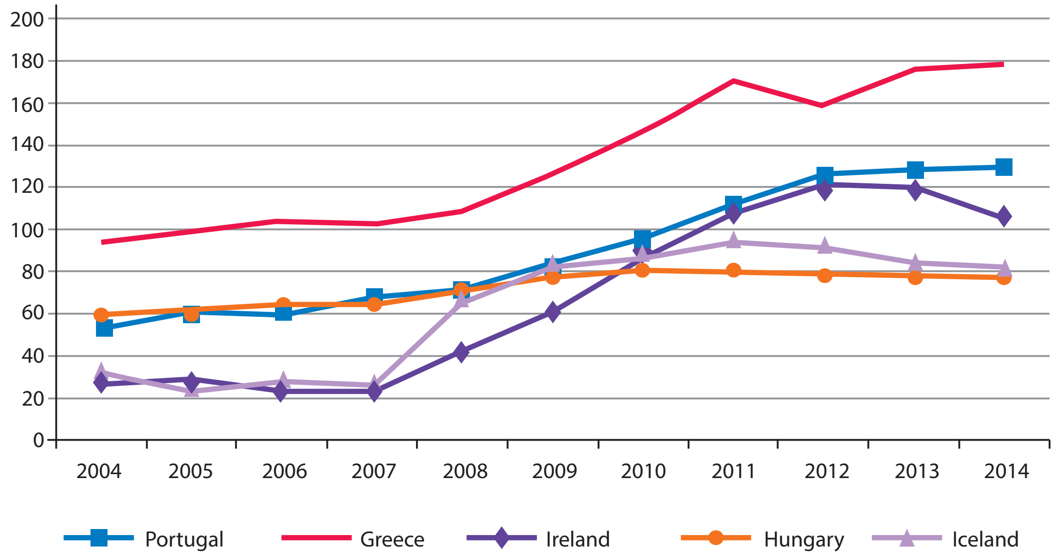

Fig. 4. Dynamics of national debt to GDP ratio in the countries applying for IMF's financial aid. (Source: WEO, April 2016)

allocated to the EMDCs' reserves mostly contribute to the developed economies' growth, as such economies issue reserve currencies. Under these circumstances, the increase of reserves' weight in the quota formula would be an appropriate compensation to EMDCs that are unable to use in the national economy the funds allocated to international reserves.

Thus, the new formula should include such variables of the current formula as GDP and international reserves. BRICS experts' survey conducted by RISS confirms that conclusion.

Over 70 per cent of the respondents spoke for using GDP (PPP) variable in the quota formula, while only 31 per cent of the respondents advocated further using of GDP at market exchange rates. At the same time, the experts who consider it possible to keep both variables in the quota formula believe that the weight of GDP (PPP) shall be at least 50 per cent. As for the international reserves, this variable had the support of 57 per cent of the respondents. With that, they believe that its weight in the formula shall be increased to 18 per cent.[33]

Relatively low support of international reserves reflects the fact that this variable does not fully take into account the risks to financial stability. Indeed, the international reserves can only be used to correct the current imbalance, whereas the budget shortfall along with external threats creates serious problems for the economy and may lead to financial shocks, as happened in Europe during the 2012 sovereign debt crisis.

Sustainable excess of the budgetary expenditures over the revenues results in the increase of the country's national debt, which is an important financial stability indicator. As long as investors find its level acceptable, there are usually no problems. However, where there are concerns that the government is unable to service its obligations under the current interest rates, it may result in the financial market panic. In such case, the country usually does not have enough resources to cope with the crisis' consequences by its own.

In other words, as compared with variability, debt variable much better indicates the likelihood that the country will seek the IMF financial aid. Almost all countries with national debt spiked since the beginning of the 2008-2009 global crisis later had to seek the loans from the IMF (Fig. 4).

Iceland is a perfect example in this context. Once its national debt spiked from 27.3 per cent of GDP in 2007 to 67.6 per cent in 2008[34], the Icelandic government had to use the IMF's financial aid. Portugal received the loan from the IMF in 2011, after its national debt reached 111.4 per cent of GDP compared to 68.4 per cent in 2007.[35]

In addition, national debt may be substantially considered as a forward-looking indicator showing the probability of GDP reduction. This was highlighted in the IMF's Fiscal Monitor of April 2016, pointing out that the economic growth prospects deteriorate against the growth of budget problems.[36] Now the ratio of national debt to GDP in most countries is actually revised upwards. These changes are most significant to the emerging markets where, as expected, this ratio may exceed the level evidenced in the beginning of the 2008–2009 global financial crisis. At the same time, developed countries are still vulnerable against the heavy national debt, which exceeds 100 per cent of GDP for this group of countries. Consequently, the likelihood of a long-term period of lower GDP growth rate for such countries increases.

The QFRW formerly refused to use the debt as a variable: the Group believed it could cause some "moral issues" when the countries are interested in increasing their debt with the purpose to increase the quota share.[37] This dilemma can be avoided by using a reverse variable, which excludes the possibility of manipulation. In such case the countries with relatively low national debt could gain advantage, while the quota of the countries with higher level of national debt will not be significantly reduced, thus allowing them to influence the aid programs' elaboration, in which they may be interested.

A major advantage of the national debt as a variable is that unlike openness and variability it hardly correlates with GDP (Tab. 1).

As a result, if under the current quota formula the same group of countries are the beneficiaries of its constituent variables, the inclusion of the new variable in the formula will make the quotas distribution more equitable. Therefore, the optimal quota formula can be represented as follows:

$$\mathbf{CQS=\alpha*GDP+\beta*FS,}$$
$$\textbf{provided that } \boldsymbol{\alpha+\beta=1}.$$

where:

GDP – GDP, calculated as γ* GDP (PPP) + δ*GDP at market exchange rates ($\gamma+\delta=1$);

FS – financial sustainability variable, calculated as κ*reserves + λ*X/debt ($\kappa+\lambda=1$).

As X we used the following two variables: GDP and openness variable, calculated as the amount of receipts and payments under the BoP' current account.

Selection of variables included in the new formula is based on the results of the survey previously conducted by BRICS experts.[38] According to the survey results, only 16 per cent of the respondents in favour of variability. However, 41 per cent of the experts supported the further use of openness. To that end, variability was not included in our estimates, whereas openness was represented in the estimates from time to time.

For the purposes of the research, two series of estimates were made. In the first one, the current formula was taken as the reference point, where variability was replaced by the ratio of GDP to gross national debt (with the same weight). Subsequent estimates did not include openness as a variable, and its weight was reviewed in favour of GDP and reserves. We also considered an option to change the weight of reserves and debt. In addition to this we examined how different proportions of GDP at market exchange rates and GDP (PPP) within the GDP variable influence the eventual result. The result is provided in the Annex (Tab. 1.)

In the second series of the estimates, variability was replaced by the same weight variable, calculated as the ratio of openness to national debt. In further estimates, the weight of this variable declined while the weight of GDP and reserves variables increased. The result is provided in the Annex (Tab. 2.)

Basic estimates founded on the replacement of variability by either of two debt variables, showed sharp increase of the cumulative quota share of EMDCs. In case of using GDP-to-debt ratio, their aggregate quota shall increase from 38.7 to 53.2 per cent (while the quota of USA shall decrease from 17.4 to 12.1 per cent). The replacement of variability by openness-to-debt ratio shows similar results for large economies. However, according to the estimates, this variable favours the growth of the weight of small EU member states, resulting in 24.9 per cent quota of EU in the second series of the estimates (as compared with 23.3 per cent in the first one). Thus, the aggregate quota of EMDCs increased to 51.9 per cent in the second series of the estimates.

On the other hand, complete abandonment of the use of openness leads to further growth of EMDCs in the IMF's cumulative quota share. Where the weight of this variable (30 per cent) is fully transferred to GDP, their quota shall increase to 56.5 per cent. Moreover, it will rise to 58.6 per cent in case of spreading it between GDP and reserves in the ratio of 2 to 1. At the same time, the US quota increases to 13.9 per cent in the first case with the slightly changes to 12.3 per cent in the second one (as compared with the base version). Furthermore, the EU countries lose the most. Their

	openness	variability	reserves	debt*
All IMF member countries	0,93	0,94	0,62	-0,07 / -0,08
Developed countries	0,91	0,97	0,27	-0,25 / -0,13
Developing countries	0,96	0,91	0,94	0,008 / -0,03

Table 1: Correlation between GDP and other variables
* Depending on the selected debt variable (GDP/debt; openness/debt)
Prepared on the basis of the IMF data and own calculation

aggregate quota (30.6 per cent) decreased to 19 per cent in the first case and to 17.7 per cent in the second one.

At the same time a decrease in the weight of debt variable from 15 to 5 per cent (provided that the weight of GDP amounts to 85 per cent and reserves to 10 per cent) does not lead to a significant redistribution of quotas between developed and developing countries, but causes a change in the balance of quotas among developed countries. In particular, the US share increased to 14.7 per cent while the EU share decreased to 19.6 per cent compared with accordingly 12.1 and 23.3 per cent in the base version. Along with it, in case of preserving openness variable (at the level of 20 per cent) and increasing the weight of GDP only to 65 per cent, the redistribution of quotas between the EU and the USA has more moderate form.

The estimates also showed that strengthening the role of GDP (PPP) upon determination of blended GDP led to a growth in the quota of developing countries while reducing the quota of developed countries.

Conclusions and suggestions for further discussion

Having examined opinions of the IMF member countries, IMF executives and international experts community, we can conclude the absence of consensus on further IMF reform. At the same time, it is possible to summarize the following aspects that may quite clearly describe the current situation and views of parties in course of ongoing negotiation process:

1. The 2010 reform did not lead to a significant change in distribution of quotas and votes in IMF. Developed countries continue to control the IMF's activities. The influence of developing countries remains low.

2. Now, a significant redistribution of the IMF's quotas and votes is directly related to change in the quota formula, but still no compromise has been reached on this issue. The lack of open dialogue and public discussion plays in favour of developed countries interested in preserving current status quo. The problems of EMDCs refer to their disunion and, consequently, failure to develop a unified consolidated position. The progress within BRICS requires further evolving by engagement of other developing countries to BRICS activities in respect to this issue.

3. Variables of the formula are still subject to diplomatic battles and heated debate among the academic community. The only argument that doesn`t receive criticizm is that the quotas of the IMF member countries should match their role in the world economy, and GDP can be used for this purpose (GDP is viewed as

the most important variable of the quota formula by the majority of the experts).

4. Other variables of the quota formula (openness, variability and international reserves) have both opponents and supporters. Only reserves are recognised as a necessary variable of new formula (weight of this variable is usually being discussed in course of debates). Reasonability of using openness and variability is not confirmed by the IMF staff researches and other experts. At the same time, countries receiving the most advantages from these variables insist on its keeping in the formula.

5. Arguments for including vulnerability indicators into the quota formula seem to be justified. Under current conditions, with the total value of assets traded on the financial markets several times higher than the amount of the world GDP, it is necessary to take into account the country`s resilience to global financial shocks.

6. We think that "vulnerabilities" may be best evaluated by strengthening the role of international reserves that can be used in case of the adverse changes in both foreign trade and capital flows, and by including national debt that shows long-term results of country's fiscal policy.

The estimates show that even a small increase in the weight of international reserves with including national debt in the quota formula leads to the quota share decrease for the countries that demonstrated vulnerability to external and internal negative factors during the 2008-2009 crisis. Thus, the distribution of votes becomes more equitable due to the parity reached between developed and developing countries.

Annex

Countries	Current quota	without variability						
		Debt variable with the weight of 15 per cent	without openness; its weight redistributed		without openness; weight for debt — 5 per cent, weight for reserves — 10 per cent; GDP blended at the ratio of:			
			weight redistributed to GDP	weight redistributed at the ratio of 2:1 for GDP and reserves	60 / 40	50 / 50	40 / 60	30 / 70
1	2	3	4	5	6	7	8	9
Advanced economies	61,3	46,8	43,5	41,4	46,3	44,9	43,6	42,2
"G7"	43,4	30,0	30,8	28,5	33,1	32,1	31,1	30,1
USA	17,4	12,1	13,9	12,3	14,7	14,3	13,9	13,5
Japan	6,5	4,4	4,9	5,3	5,6	5,4	5,2	5,1
Germany	5,6	4,1	3,4	3,0	3,6	3,5	3,4	3,3
France	4,2	2,7	2,5	2,3	2,7	2,6	2,5	2,4
Great Britain	4,2	2,8	2,5	2,3	2,7	2,6	2,5	2,4
Italy	3,2	2,1	2,0	1,8	2,1	2,1	2,0	1,9
Canada	2,3	1,8	1,7	1,5	1,8	1,7	1,6	1,6
European Union	30,4	23,3	19,0	17,7	19,6	19,1	18,6	18,1
EMDC	38,7	53,2	56,5	58,6	53,7	55,1	56,4	57,8
BRICS	14,7	18,9	20,9	22,6	23,7	24,3	24,9	25,4
Brazil	2,3	2,1	2,6	2,6	2,9	2,9	2,9	2,9
Russian Federation	2,7	2,5	2,7	2,8	2,9	3,0	3,1	3,1
India	2,7	2,7	3,3	3,1	3,6	3,9	4,2	4,5
China	6,4	11,0	11,6	13,5	13,7	13,9	14,1	14,3
South Africa	0,6	0,5	0,6	0,5	0,6	0,6	0,6	0,6

Tab. 1. Series of estimates No 1.
"Debt" variable is measured as the ratio of GDP to general government gross debt.
Sources: WEO database, April 2016 (for GDP and debt rates); IFS database (for rates of openness and reserves). The cutoff date for data used in estimating is 31.12.2014.

Countries	Current quota	without variability						
		Debt variable with the weight of 15 per cent	weight for opennes — 25 per cent; 5 per cent redistributed to GDP	weight for opennes — 20 per cent; 5 per cent redistributed to GDP, 5 per cent — to reserves	weight for opennes — 20 per cent; weight for debt — 5 per cent, weight for reserves — 10 per cent, GDP blended at the ratio of:			
					60/40	50/50	40/60	30/70
1	2	3	4	5	6	7	8	9
Advanced economies	61,3	48,1	49,6	50,0	49,0	47,9	46,9	45,8
"G7"	43,4	30,0	31,8	32,4	32,7	31,9	31,1	30,3
USA	17,4	12,1	12,9	13,0	13,6	13,2	12,9	12,6
Japan	6,5	4,4	4,7	5,1	5,3	5,2	5,0	4,9
Germany	5,6	4,1	4,3	4,3	4,1	4,0	3,9	3,8
France	4,2	2,7	2,9	2,9	2,8	2,7	2,7	2,6
Great Britain	4,2	2,8	3,0	3,0	2,9	2,8	2,7	2,7
Italy	3,2	2,1	2,2	2,2	2,2	2,1	2,1	2,0
Canada	2,3	1,8	1,9	1,9	1,9	1,8	1,7	1,7
European Union	30,4	24,9	25,0	24,5	23,0	22,7	22,3	21,9
EMDC	38,7	51,9	50,4	50,0	51,0	52,1	53,1	54,2
BRICS	14,7	18,7	19,8	21,7	22,3	22,8	23,2	23,7
Brazil	2,3	2,1	2,2	2,4	2,5	2,5	2,5	2,5
Russian Federation	2,7	2,4	2,5	2,7	2,8	2,8	2,8	2,9
India	2,7	2,7	2,9	3,0	3,2	3,4	3,7	3,9
China	6,4	11,0	11,6	13,1	13,3	13,4	13,6	13,8
South Africa	0,6	0,5	0,5	0,5	0,6	0,6	0,6	0,6

Tab. 2. Series of estimates No 2.
"Debt" variable is measured as the ratio of openness (that is the annual average of the sum of current payments and current receipts for a five year period) to general government gross debt.
Sources: WEO database, April 2016 (for GDP and debt rates); IFS database (for rates of openness and reserves). The cutoff date for data used in estimating is 31.12.2014.

Footnotes

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