

# Voting Power in the Bretton Woods Institutions

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Abstract: The Bretton Woods institutions have systems of governance based on weighted voting. Each member possesses a number of votes which depends on its quota allocation and which must be cast as a bloc. This leads to a problem of democratic legitimacy since a member's influence or voting power within such decision making systems does not in general correspond to its voting weight. This paper uses voting power analysis to show that weighted voting tends to further enhance the power of the United States at the expense of all other members in both the board of Governors and the Executive board. It goes on to investigate the proposal to increase the 'basic' votes to restore them to their original 1946 level and finds that the same effect occurs, although the representation of the poor countries is improved. A criticism that is frequently made is that the present constituency structure and voting weights work to enhance the power of the developed and creditor countries at the expense of the poor, and that many countries are effectively disenfranchised; when looked at from the voting power point of view there is evidence that the weighted voting system adds to this anti democratic bias and produces some unintended effects. We investigate the constituency system as a form of representative democracy and find that the system gives disproportionate power to small European countries, particularly Belgium and Netherlands.

## 1. Introduction

Weighed voting is fundamental to the workings of the IMF and World Bank. The principle that all member countries have the right to vote but cast different numbers of votes to reflect key differences between them was enshrined in the original Bretton Woods constitutions and has dominated their work ever since. This has been shown to have resulted in practice in a severe democratic imbalance with a voting structure that is massively biased against the developing and poor countries. Many of the current calls for reform propose changes to the weights in order to increase the voice of the poor in decisions that affect their interests. Such proposals for reform are not the central concern of this paper and we will avoid discussing them in as much detail as they deserve, leaving it to others who have done so more ably and persuasively.

Instead, this paper will argue that a further bias exists, which results from the weighted voting system *itself*. It is possible to correct for this bias also by suitable choice of weights. However, in order to do so we must understand the characteristics of weighted voting systems in terms of their implications for voting power that derive, not directly from the weights, but from the system as a whole. It is first necessary to establish that a member country's voting *power* is not the same as its *weight*: its power is its ability to decide the issue when a vote is taken whereas its weight is just the number of votes it has the right to cast; the former is a fundamental property of the voting system and the weights, that can only be revealed by suitable analysis, whereas the latter is a superficial feature. Because this distinction is often ignored, weighted voting often leads to undesired or unexpected properties. We analyse members' voting power and find that the BWIs are even more undemocratic than they are intended to be because the USA turns out to have much more voting power than its

weight at the expense of the other members. This is another argument for reforming the weights. More generally the distinction between power and weight adds to the case for decoupling the allocation of votes from both the provision of and access to finance.

It is frequently suggested that the current system of weighted voting embodies democratic accountability if one accepts the principle that voting rights should be attached to the supply of capital in the form of quotas<sup>1</sup>, since it guarantees that voting power is allocated according to members' respective financial contributions. This argument has more force today than it has had in the past with the decline in the so-called 'basic votes' and increase in the variable component of voting weight to virtual dominance<sup>2</sup>. In fact the distorting effect of weighted voting that we describe here makes this claim far from being true, even in its own terms.

As a general principle weighted voting is an attractive idea because it offers the prospect of designing an intergovernmental decision-making body that could have a real claim to democratic legitimacy – for example in an institution of world government where a country's voting power reflects its population. But it is important to be clear about what we mean by weighted voting. Systems based on the use of a bloc vote where a country or group of countries acting together casts all its voting weight as a single unit, as in the Bretton Woods Institutions, cannot be relied on to work like that and in general do not, as we will show. On the other hand if the system

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<sup>1</sup> For example, "I would also like to underline that still we are a financial institution, and a financial institution means you need also to have someone who provides capital, and I think there is a healthy element in the fact that the provision of capital and voting rights is, in a way, combined, because this is also an element of efficiency, of accountability." Horst Köhler, Managing Director of the IMF, in evidence to the House of Commons Treasury Select Committee, 4<sup>th</sup> July 2002.

<sup>2</sup> See Buirra (2002), Van Houtven (2002).

is one where a country is represented by a number of delegates each of whom has one vote that they are allowed to cast individually, rather than having to cast their votes as a unit, then there is no problem. The latter is simply a representative democracy and the number of votes or delegates is equivalent to the country's power. The argument we are advancing here holds only in the former case, when the votes cannot be split.

We will use the method of voting power analysis to explore the relationships between the voting weights, the decision rule and the resulting voting powers of the members. This requires us to analyse all the voting outcomes that can occur, and in each case to investigate the ability of every member to be decisive – that is to be the one member who can decide whether the vote leads to a decision or not. An important aspect will be use of voting power indices to make comparisons between the powers of the different members. Our principal result is that the voting power of the USA turns out to be far greater than its quota would warrant. We also use the method to investigate two important hypothetical scenarios. First, the power implications of a redistribution of voting rights that is being seriously proposed and enjoys widespread support, the restoration of the basic votes to their original 1946 level. The second scenario we consider is the Executive Board as a representative democracy in which the constituencies are really taken seriously as electoral bodies. The main result here is that this system considerably enhances the power of the smaller European countries, especially Belgium and Netherlands.

We begin with an outline of the principles of voting power analysis in the next section. Then in section 3 the system of governance of the IMF and World Bank is outlined, in section 4 we present the analysis of the Board of Governors, and in section 5 that of the Executive Board. In subsequent sections we use voting power

analysis to study the effects of structural changes that have been proposed: reweighting by restoring the basic votes to their original 1946 level of 11.3 percent of the votes, in section 6, and in section 7 we consider the voting power implications for making the constituency system of the Executive Board democratic by introducing formal voting within constituencies.

## **2. Weighted Voting and Voting Power Analysis**

It is customary, in the language of the Bretton Woods Institutions, to refer to the number of votes a member country has as its 'voting power'. No doubt this is what its voting power is *intended* to be, but it is certainly not its power in the true sense of the term, but its *weight*, in the sense of weighted voting. A country's power is its capacity to be decisive in a decision taken by vote, measured by the frequency with which it can change a losing vote to a winning one. In general this has a rather imprecise relation with its weight. In reality its power depends on all the other members' weights as well as the voting rule by which decisions are taken.

An important real-world example makes the point clearly and is worth considering here, even though it does not come from the Bretton Woods institutions. Between 1958 and 1972 the European Economic Community comprised six countries: Belgium, France, Italy, Luxembourg, the Netherlands and West Germany. Although most decisions then were taken by unanimity, some were taken by qualified majority voting; that is a form of weighted voting, wherein France, Italy and West Germany had four votes each, Belgium and the Netherlands two, and Luxembourg one. Thus it was said that Belgium possessed half - and Luxembourg one quarter - as much voting power as West Germany, although their relative populations were only 16.7 percent and 0.6 percent respectively of that of West Germany. It was often said

that the smaller countries were overrepresented in the voting system relative to their population sizes but that this was not a problem because they were sovereign states and voting power should reflect that as well as population sizes. But this was false as voting power analysis reveals.

Considering all possible voting outcomes shows that Luxembourg had no voting power whatever. The threshold number of votes for a decision to be taken by qualified majority voting had been fixed at 12. This decision rule meant that Luxembourg could only be decisive if the combined total of the votes cast by the other five members came to 11, which was impossible since they were all even numbers. Therefore the voting power of Luxembourg in any vote under qualified voting was precisely zero. We therefore have the significant finding that one of the six sovereign states that made up the EEC was in fact powerless<sup>3</sup> in qualified majority voting; this result should be more widely known than it is. It is important also because it illustrates the usefulness of voting power analysis in a real example and moreover the results do not depend on use of models or assumptions which might be open to question but are simple arithmetical facts.<sup>4</sup>

By contrast, the same analysis shows that Belgium had some voting power. This can be measured by means of a power index as follows. Considering all voting outcomes that could theoretically occur, Belgium (equivalently Netherlands) could be decisive in 6 cases, while West Germany (equivalently France or Italy) could be decisive in 10 cases out of the 32 possibilities. Then the power index of Belgium (Netherlands) is  $6/32 = 0.1875$  and that of West Germany (France, Italy)

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<sup>3</sup> The reader should note that there is nothing in this finding other than simple arithmetic.

<sup>4</sup> See Leech (2003b) on the relevance of voting power analysis.

$10/32=0.3125$ . Then we can say that Belgium has sixty percent (that is, its relative decisiveness, equal to  $6/10 = 0.1875/0.3125$ ) of the power of West Germany. This result does support the idea that the weighted voting system did mean that Belgium was overrepresented in relation to its population, compared with West Germany.

We use the voting power approach and power indices to study the Bretton Woods institutions in the next section. By considering all possible voting outcomes the method is technically that of *a priori* voting power: each member's power index is its decisiveness as a fraction of the possible outcomes. The method can be thought of as an analysis of the implications for power of the rules of decision making, as giving what can be called constitutional power<sup>5</sup>. Probability calculus is used as a tool for calculating the power indices<sup>6</sup>.

The methodology of voting power analysis will be used in two ways in this study. First it will be used to analyse power relations in the existing structures of the IMF and World Bank. We will also consider the effects of restoring basic votes to their original level, aimed at increasing the power of poor countries. These will be the main empirical results of the paper.

The methodology can also be used to study the properties of indirect procedures where there is first a vote in each of a series of groups each containing a number of members and then each of them votes as a bloc in the second stage. The power index described above provides a simple methodology for doing such analysis, since the

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<sup>5</sup> No consideration is given here for the members' preferences, which would determine the likelihood of particular members voting in the same way as each other, which would produce an analysis of empirical voting power. Such an analysis is beyond the scope of the present study but would be useful in future work.

<sup>6</sup> Technically these are Penrose indices (equivalently known as absolute Banzhaf indices or Coleman power indices). See Felsenthal and Machover (1998).

power index for any member is simply obtained as the product of the two relevant power indices. This approach follows that proposed by Coleman (1973) to address the question of why social actors give up power to join groups. By joining with others in a group, an actor gives up his power as an independent voter but may gain by becoming a member of the group which is more powerful because it possesses the power of combined forces. The use of power indices permits results to be obtained very easily since it allows us to combine the power of the actor within the group and the power of the group. This approach lends itself naturally to the analysis of intergovernmental weighted voting with accountability to a lower body, whether a country's electorate or a regional intergovernmental grouping. It is also useful for the analysis of voting power implications of changes to the architecture of voting in the international institutions.

The second use of voting power analysis in this paper, then, as an application of this approach, is more methodological in focus, and speculative in context. The intention is to illustrate the approach, which has not been widely used. We will analyse the Executive boards of the BWIs treating them formally as constituent, representative bodies based on the existing constituencies and weights. We emphasise that such scenarios are very stylized and open to criticism.

### **3. Weighted Voting in the IMF and World Bank**

The IMF and World Bank have broadly similar constitutions, the main differences between them being relatively minor. All countries have direct representation at the highest level, as members of the Board of Governors, but the management of each of the institutions is done by its respective Executive Board, whose members are either appointed or elected. The voting weight of each country is

made up of two components: a fixed component of 250 ‘basic’ votes which is the same for each country, and a variable component that depends on the country’s quota (IMF) or shareholding (WB)<sup>7</sup>. When the BWIs were created, this arrangement was intended as a compromise between the equal representation of member countries (via the basic votes) and voting power based on contributions in the manner of a joint stock company. Over time the basic element has become eroded and the quota- or share-based votes have come to dominate. This is a major factor in the disempowerment of the poor countries and the restoration of the basic votes to their original level is a main aim of the reform movement.

There are currently (in 2003) 184 members. The USA has by far the largest voting weight, with 371,743 votes, 17.11 percent, in the IMF (and 16.41 in the World Bank, IBRD). This is followed by Japan with 6.14 percent (7.87), Germany 6.00 percent (4.49), France and UK with 4.95 percent (4.31) and so on. The smallest member is Palau with 281 votes, representing 0.01 percent (0.02).

The Executive Board consists of 24 members some of whom are appointed by their governments and some of whom are elected by member states. Five directors are appointed by the members with the largest quotas or shareholdings: USA, Japan, Germany, France and Britain. Three other members are appointed by Saudi Arabia, China and Russia. The remaining 16 directors are elected by the members. Executive directors use weighted voting exactly like the governors, the appointed directors exercising the number of votes of the member that appointed them, and the elected directors casting the combined number of votes of the countries that voted for them.

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<sup>7</sup> We take the IBRD votes and shareholdings to represent the World Bank, although it actually consists of four different bodies that have different voting weights. Studying the implications of these differences will be left for later work.

There are elections for directors every two years. The rules for electing directors lay down strict limits on the sizes of the weighted votes that they can control in order to prevent any elected director becoming too powerful. The result is a pattern of voting power generally similar to that of the governors.

There are a variety of decision rules that are used for different types of decisions. Ordinary decisions are made by simple (weighted) majority of the votes cast (the quorum for meetings of the Board of Governors being a majority of members having not less than two-thirds of the voting weight; that for the Executive Board being a majority of directors having not less than one-half of the total voting weight). A number of matters require decisions to be taken by a supermajority of 85 percent. This supermajority, taken in conjunction with the weight of the USA, 17.11 percent in the IMF and 16.41 in the World Bank, mean that the USA is the only single member that possesses a veto.

It is well known that the American veto has always been an important aspect of the governance of the institutions, and continues to be so, the articles having been amended to increase the supermajority threshold for special decisions from 80 to 85 percent when the USA wanted to reduce its contribution. The existence of this veto power does not mean that the USA can be said to *control* the institutions, however. On the contrary, although it gives it absolute unilateral blocking power, at the same time it also limits that country's power because it equally ensures a veto for small groups of other countries. Formally, in terms of Coleman's terminology,<sup>8</sup> while the supermajority rule gives the United States complete *power to prevent action*, it also limits its *power to initiate action*. Therefore its power – and its power index (which is

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<sup>8</sup> Defined in Coleman (1971).

an average of these two) - is limited. The existence of the 85 percent supermajority can be seen to give a veto power to three other countries acting together (for example, Japan, Germany and France). The developing countries, if they acted as a bloc, or the EU countries, or many other similar small groups, obviously have a veto<sup>9</sup>. The 85 percent rule effectively tends to equalize power to a considerable extent.<sup>10</sup> For these reasons the power analysis in this study considers only ordinary decisions that require a simple majority vote. Analysis of power under supermajorities (for the IMF) has been made in Leech (2002a).

#### **4. Power in the Board of Governors**

Table 1 presents the results for the Boards of Governors of both the BWIs. The countries are arranged in order of their voting weight (and voting power) in the IMF. The table shows, for each of the main countries, in the respective columns, for the IMF, (1) its share of the total weighted votes, (2) its power index<sup>11</sup>, (3) its power index normalized such that it is expressed as a share of the total power; the equivalents for the World Bank are in columns (4), (5) and (6). The remaining three columns contain the shares of world GDP in terms of nominal dollars and purchasing power parity, and finally shares of world population, for comparison.

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<sup>9</sup> This point about the difference between veto power and the power of control was made very clearly by Keynes in opposition to the proposed American veto based on supermajorities in his maiden speech to the House of Lords in 1943 at the time when the Bretton Woods institutions were being planned. See Moggridge (1980), p. 278; also his Letter to J. Viner, p. 328. Keynes advocated simple majority voting.

<sup>10</sup> Taking the argument to its limit, the case of a unanimity rule (i.e. a supermajority requirement of 100 percent) would give every member a veto and equalise power, making voting weight irrelevant.

<sup>11</sup> These power indices have been calculated using the computer program *ipanal*, which implements the algorithm for computing power indices for voting bodies which are large both in having many members and where the voting weights are large, described in Leech (2003a). For an overview of computing power indices see Leech (2002b).

The table shows that the voting power of the United States is considerably more than its weight in both institutions. This result is a property of the weighted voting system with the given weights. All other members have less power than their weight. Thus we can say that the weighted voting system, as it is presently constituted, has a hidden tendency to enhance the power of the USA at the expense of all other countries.

The table brings out some of the inconsistencies that exist in the allocation of voting weights as well as voting power in the BWIs. The USA has a much smaller share of voting weight than its share of world GDP, over 32 percent, would warrant; on the other hand it seems about right if its voting power is compared with its share of GDP in Purchasing Power Parity terms, and way too much compared with its population.

It also brings out a number of glaring anomalies. Canada and China have the same number of votes, and voting power, but on each of the three criteria, China is much bigger than Canada. This bias against developing countries is seen also, particularly in the IMF, in the comparison of the voting weight of countries like Belgium, Netherlands and Spain with India, Brazil and Mexico. A particularly glaring juxtaposition is that between Denmark and South Korea in the IMF, the former having more voting weight than the latter.

**Table 1. Voting Weights and Voting Powers in the Governors  
(Selected Countries)**

	IMF			World Bank			Shares of World:		
	Weight Share	Power Index	Power Share	Weight Share	Power Index	Power Share	GDP	GDP(PPP)	Population
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
USA	<b>17.11</b>	0.7631	<b>20.43</b>	<b>16.41</b>	0.7471	<b>19.49</b>	32.90	21.88	4.71
Japan	<b>6.14</b>	0.2243	<b>6.00</b>	<b>7.87</b>	0.3014	<b>7.86</b>	13.54	7.13	2.10
Germany	<b>6.00</b>	0.2189	<b>5.86</b>	<b>4.49</b>	0.1669	<b>4.35</b>	6.04	4.66	1.36
France	<b>4.95</b>	0.1794	<b>4.80</b>	<b>4.31</b>	0.1598	<b>4.17</b>	4.28	3.17	0.98
UK	<b>4.95</b>	0.1794	<b>4.80</b>	<b>4.31</b>	0.1598	<b>4.17</b>	4.66	3.17	0.97
Italy	<b>3.26</b>	0.1169	<b>3.13</b>	<b>2.79</b>	0.1026	<b>2.68</b>	3.56	3.19	0.96
SaudiArabia	<b>3.23</b>	0.1157	<b>3.10</b>	<b>2.79</b>	0.1026	<b>2.68</b>	0.61	0.64	0.35
Canada	<b>2.94</b>	0.1054	<b>2.82</b>	<b>2.79</b>	0.1026	<b>2.68</b>	2.27	1.88	0.51
China	<b>2.94</b>	0.1054	<b>2.82</b>	<b>2.79</b>	0.1026	<b>2.68</b>	3.79	11.42	21.00
Russia	<b>2.75</b>	0.0983	<b>2.63</b>	<b>2.79</b>	0.1026	<b>2.68</b>	1.01	2.30	2.39
Netherlands	<b>2.39</b>	0.0853	<b>2.28</b>	<b>2.21</b>	0.0812	<b>2.12</b>	1.24	0.97	0.26
Belgium	<b>2.13</b>	0.0761	<b>2.04</b>	<b>1.81</b>	0.0663	<b>1.73</b>	0.75	0.59	0.17
India	<b>1.93</b>	0.0687	<b>1.84</b>	<b>2.79</b>	0.1026	<b>2.68</b>	1.56	6.55	17.05
Switzerland	<b>1.60</b>	0.0572	<b>1.53</b>	<b>1.66</b>	0.0609	<b>1.59</b>	0.81	0.45	0.12
Australia	<b>1.50</b>	0.0535	<b>1.43</b>	<b>1.53</b>	0.0561	<b>1.46</b>	1.21	1.10	0.32
Spain	<b>1.42</b>	0.0504	<b>1.35</b>	<b>1.75</b>	0.0641	<b>1.67</b>	1.90	1.85	0.68
Brazil	<b>1.41</b>	0.0502	<b>1.34</b>	<b>2.07</b>	0.0762	<b>1.99</b>	1.64	2.83	2.85
Venezuela	<b>1.24</b>	0.044	<b>1.18</b>	<b>1.27</b>	0.0467	<b>1.22</b>	0.41	0.31	0.41
Mexico	<b>1.20</b>	0.0428	<b>1.15</b>	<b>1.18</b>	0.0432	<b>1.13</b>	2.02	1.87	1.64
Sweden	<b>1.11</b>	0.0397	<b>1.06</b>	<b>0.94</b>	0.0345	<b>0.90</b>	0.69	0.48	0.15
Argentina	<b>0.99</b>	0.0351	<b>0.94</b>	<b>1.12</b>	0.0412	<b>1.07</b>	0.88	0.95	0.62
Indonesia	<b>0.97</b>	0.0345	<b>0.92</b>	<b>0.94</b>	0.0345	<b>0.90</b>	0.48	1.37	3.45
Austria	<b>0.87</b>	0.0311	<b>0.83</b>	<b>0.70</b>	0.0256	<b>0.67</b>	0.62	0.49	0.13
South Africa	<b>0.87</b>	0.031	<b>0.83</b>	<b>0.85</b>	0.0311	<b>0.81</b>	0.37	1.09	0.71
Nigeria	<b>0.82</b>	0.0292	<b>0.78</b>	<b>0.80</b>	0.0292	<b>0.76</b>	0.14	0.25	2.14
Norway	<b>0.78</b>	0.0278	<b>0.74</b>	<b>0.63</b>	0.0232	<b>0.60</b>	0.54	0.30	0.07
Denmark	<b>0.77</b>	0.0273	<b>0.73</b>	<b>0.85</b>	0.031	<b>0.81</b>	0.53	0.35	0.09
Korea	<b>0.76</b>	0.0272	<b>0.73</b>	<b>0.99</b>	0.0364	<b>0.95</b>	1.38	1.60	0.78
Iran	<b>0.70</b>	0.025	<b>0.67</b>	<b>1.48</b>	0.0543	<b>1.42</b>	0.37	0.87	1.07
Malaysia	<b>0.70</b>	0.0248	<b>0.66</b>	<b>0.53</b>	0.0192	<b>0.50</b>	0.29	0.47	0.39
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Power indices calculations done using the authors' program *ipanal*.

## **5. Power in the Executive Board**

Table 2 shows the equivalent analysis for the Executive Board.<sup>12</sup> All twenty four countries whose representatives are directors are listed. In the main these are the same for both institutions but, where they differ, as in the case of some elected directors, both countries are named. The directors of the first five countries listed are appointed and the rest are elected. For the latter countries, the number of members in the constituencies that elect them are given in column (1); apart from the three one-country constituencies which effectively appoint rather than elect, these vary from 4 to 20 and 24. As before the table shows the voting weight, power index and power share for both BWIs.

In so far as direct comparisons are meaningful, results are very similar to those for the Governors. Direct comparisons of power indices for the directly appointed directors are possible, but for some of the elected directors they are not so straightforward because it is necessary to take account of the power distribution within the constituency. We provide a fuller analysis of the Executive Board in section 7 below.

The results show the same effect as before: a strong tendency for weighted voting to enhance the voting power of the United States at the expense of the other directors.

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<sup>12</sup> It is customary for spokesmen for the BWIs to point out that decisions in the executive are normally taken by consensus and formal votes are avoided. However it has also been pointed out that the process of building a consensus during a debate involves the informal keeping of a tally of weighted votes, a consensus being deemed to have been found when the required majority has been reached. Thus weighted voting underpins the consensus mechanism. See Woods (2001).

**Table 2. Voting Weights and Voting Powers in the Executive Directors**

Seat	Country of Director*	No. of Members	IMF			World Bank		
			Voting Weight	Power Share	Power Index	Voting Weight	Power Share	Power Index
		(1)	(2)	(3)	(4)	(5)	(6)	(7)
1	USA		17.11	21.50	0.64586	16.41	20.18	0.62311
2	Japan		6.14	5.83	0.17511	7.87	7.55	0.23323
3	Germany		6.00	5.69	0.17105	4.49	4.27	0.13198
4	France		4.95	4.70	0.14117	4.31	4.12	0.12716
5	UK		4.95	4.70	0.14117	4.31	4.12	0.12716
6	Belgium, Austria	10	5.14	4.88	0.14651	4.80	4.60	0.14196
7	Netherlands	12	4.85	4.60	0.13823	4.47	4.27	0.1319
8	Spain, Venezuela	8	4.28	4.06	0.12187	4.50	4.31	0.13294
9	Italy	7	4.19	3.97	0.11922	3.51	3.35	0.10337
10	Canada	12	3.71	3.52	0.10559	3.85	3.68	0.11351
11	Iceland, Denmark	8	3.51	3.33	0.09988	3.34	3.19	0.09851
12	Australia	14	3.33	3.16	0.09481	3.45	3.30	0.10176
13	Saudi Arabia	1	3.23	3.06	0.09179	2.79	2.66	0.08206
14	Indonesia, Thailand	12	3.18	3.01	0.0903	2.54	2.42	0.07487
15	Nigeria, Uganda	20	3.18	3.01	0.09029	3.41	3.26	0.10061
16	Egypt, Kuwait	13	2.95	2.79	0.08375	2.72	2.59	0.08011
17	China	1	2.94	2.79	0.08368	2.79	2.66	0.08207
18	Switzerland	8	2.85	2.69	0.08091	2.97	2.83	0.08739
19	Russia	1	2.75	2.60	0.07814	2.79	2.66	0.08206
20	Brazil	9	2.46	2.33	0.0699	3.60	3.43	0.10605
21	Iran, Pakistan	7	2.45	2.32	0.06969	3.38	3.22	0.09956
22	India	4	2.40	2.27	0.06814	3.40	3.24	0.10018
23	Chile, Argentina	6	2.00	1.89	0.05674	2.32	2.21	0.06817
24	Equatorial Guinea, Guinea-Bissau	24	1.41	1.34	0.04024	2.00	1.90	0.05861
Total		182	100	100	3.00404	100	100	3.08833

\*If the directors of a constituency on the two bodies are from different countries, that for the IMF is listed first. Power indices have been calculated using the method of generating functions and the authors' program *ipgnef*.

## 6. Restoring the 'Basic' Votes to their Original Level

One of the key proposals to improve the democratic legitimacy of the BWIs that has been made by the developing and poor countries, that has gained widespread support among industrial countries as well, has been the restoration of the basic votes to their level at the time of the foundation of the institutions in 1946. (Buirra, 2002,

Woods, 2001) Then each country was allocated 250 basic votes, which did not depend on its quota or shareholding. However, although these basic votes have remained unchanged and the number of member countries has increased more than fourfold, IMF quotas and World Bank shareholdings have grown more than 37-fold. The result has been that the basic votes, which represent such a large fraction of the voting weight of the poor countries, have been eroded dramatically limiting the voice of these countries in decision making. The basic votes in the IMF have declined from their original level of 11.3 percent (and their maximum level of 14 percent in 1956) to 0.5 percent now, and a similar pattern has occurred in the World Bank.

Table 3 reports the effect on voting power of restoring the basic votes to 11.3 percent. We have assumed the basic votes of each member country of the IMF to become 1480, and in the World Bank to be 1088, instead of 250. The number of quota- or shareholding- based votes remains the same for each country but now these represent in total a smaller fraction than currently, 88.7 percent. The effect is substantially to increase the voting weight of the poor countries and reduce the weight of the large industrial countries, but has little effect on the larger developing countries, some of whose weight shares fall.

The power analysis shows that, while the weights and powers of the smaller poor countries increase at the expense of the large and rich countries, the United States still has more power than weight, although the effect is smaller than before. It is therefore still the case that the system of weighted voting favours the USA, through its voting power being much greater than its weight.

**Table 3. The Effect of Increasing the Basic Votes in the Governors:  
Weights and Voting Powers (Selected Countries)**

	IMF				World Bank			
	Unchanged Weights	Power Share	Adjusted Weights	Power Share	Unchanged Weights	Power Share	Adjusted Weights	Power Share
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
USA	17.11	20.43	15.56	18.59	16.40	19.49	15.02	17.86
Japan	6.14	6.00	5.61	5.52	7.87	7.86	7.23	7.25
Germany	6.00	5.86	5.49	5.39	4.49	4.35	4.15	4.04
France	4.95	4.80	4.54	4.42	4.31	4.17	3.98	3.87
UK	4.95	4.80	4.54	4.42	4.31	4.17	3.98	3.87
Italy	3.26	3.13	3.00	2.90	2.79	2.68	2.59	2.50
Saudi Arabia	3.23	3.10	2.98	2.87	2.79	2.68	2.59	2.50
Canada	2.94	2.82	2.72	2.62	2.79	2.68	2.59	2.50
China	2.94	2.82	2.72	2.62	2.79	2.68	2.59	2.50
Russia	2.75	2.63	2.54	2.45	2.79	2.68	2.59	2.50
Netherlands	2.39	2.28	2.22	2.13	2.21	2.12	2.07	1.99
Belgium	2.13	2.04	1.98	1.90	1.81	1.73	1.70	1.63
India	1.93	1.84	1.80	1.72	2.79	2.68	2.59	2.50
Switzerland	1.60	1.53	1.50	1.44	1.66	1.59	1.56	1.50
Australia	1.50	1.43	1.41	1.35	1.53	1.46	1.44	1.39
Spain	1.42	1.35	1.33	1.28	1.75	1.67	1.64	1.58
Brazil	1.41	1.34	1.33	1.27	2.07	1.99	1.94	1.87
Venezuela	1.24	1.18	1.17	1.12	1.27	1.22	1.21	1.16
Mexico	1.20	1.15	1.14	1.09	1.18	1.13	1.12	1.08
Sweden	1.11	1.06	1.06	1.02	0.94	0.90	0.91	0.87
Argentina	0.99	0.94	0.94	0.91	1.12	1.07	1.07	1.03
Indonesia	0.97	0.92	0.93	0.89	0.94	0.90	0.91	0.87
Austria	0.87	0.83	0.84	0.81	0.70	0.67	0.69	0.66
South Africa	0.87	0.83	0.84	0.81	0.85	0.81	0.82	0.79
Nigeria	0.82	0.78	0.79	0.76	0.80	0.76	0.78	0.74
Norway	0.78	0.74	0.76	0.73	0.63	0.60	0.62	0.60
Denmark	0.77	0.73	0.75	0.72	0.85	0.81	0.82	0.79
Korea	0.76	0.73	0.74	0.71	0.99	0.95	0.95	0.92
Iran	0.70	0.67	0.69	0.66	1.48	1.42	1.40	1.34
Malaysia	0.70	0.66	0.68	0.65	0.53	0.50	0.53	0.51
Bangladesh	0.26	0.24	0.28	0.27	0.32	0.30	0.34	0.32
Jamaica	0.14	0.13	0.18	0.17	0.17	0.17	0.21	0.20
Guatemala	0.11	0.10	0.15	0.14	0.14	0.13	0.17	0.17
Ethiopia	0.07	0.07	0.12	0.11	0.08	0.07	0.12	0.11
...	...	...	...	...	...	...	...	...

Power indices calculations done using the authors' program *ipanal*.

## **7. The Executive Board as a Representative Democratic Body**

Executive directors have two sets of roles; on the one hand they are professional members of the executive, working in a more or less continual session in a collegial relationship with their colleagues, as experts charged with implementing policies that are technically objective and politically neutral, and on the other they are appointed or elected representatives of the members who chose them and therefore political representatives. We are going to be concerned in this section with the latter set of roles, in particular those of the elected directors.

Although the Articles prescribe a set of formal rules for electing directors, in practice there is a constituency system in which the constituencies and their operation are said to be outside the scope of the BWIs, such that there are no formally laid down rules governing the relationships between directors and their electors that we can study. According to this those members who do not have the right to appoint their own director are arranged into rough geographical groupings. It is possible and natural to consider these constituencies as groups of electors which have a relationship with their elected representative director as any constituency does with its representative or delegate. The constituencies have no formal existence in the institutions and their workings are invariably referred to as being outside the institutions. However it seems natural to treat them for the purposes of understanding the power relations as electoral bodies.

Constitutionally constituencies are defined formally, not as geographical or other groupings of countries, but by the fact that all members voted for the director at the biennial election. This does not mean that there is general unanimity among them

however and there is naturally considerable divergence of view, particularly in those constituencies containing both developing and industrial countries. Several commentators have pointed out that although directors are supposed to represent all their constituents equally, in fact they tend to give priority to the interests of their own country, and to regard attempts by other countries to become involved in decision making as “interference”. The suggestion has been made that, in the interests of greater transparency, the informal constituency consensus system be replaced with one of open voting with ordinary decisions taken by simple majority. (Wood, 2001).

Many of the constituencies have a powerful dominant member whose director is invariably elected and so in effect these have become permanent board members. In some cases this member has an absolute majority in the constituency and therefore the other members would have no voting power if a vote were taken. This dominance means that the representatives of Australia, Belgium, Brazil, Canada, India, Italy, the Netherlands and Switzerland invariably chair their constituencies and are effectively permanent members of the board. Where the constituencies are mixed with both industrial and developing countries the chair is invariably the director from the industrial country. The other eight constituencies have no single dominant member and the chair rotates or changes otherwise.

As the institutions have grown with the addition of new members over the years, the size of the board has also grown but less than proportionately, with the result that the sizes of the constituencies have increased. Now there are an average of eleven members in each of the constituencies that elects its director. The size of constituencies varies enormously: from the ‘Indian’ constituency with only four members to the two enormous African constituencies, ‘Anglophone Africa’ which has

20 members and 'Francophone Africa' which is the largest with 24 members. The large size of these latter two constituencies representing many of the poorest countries, many involved with IMF/World Bank programmes, which have only one director each, is a major factor limiting the development and implementation of meaningful poverty reduction strategies. There is an urgent need to increase the representation of the African countries which has been widely acknowledged.

In the discussion of the BWIs it is customary to refer to the constituencies as if they operated just like any other in a representative democracy. Spokesmen for the IMF and World Bank often refer to constituencies in these terms. Directors meet their constituencies at the annual IMF/World Bank meetings.

However there appears to be issue of democratic legitimacy when one reads in the authoritative work on the governance of the IMF: "When members belonging to a given constituency hold different views on a subject, the executive director can put differing views on record but cannot split his or her vote. The resolution of such conflicts is for each director to decide and any director remains free to record an abstention or an objection to a particular decision. The system has a tempering impact and evidence shows that the decisions that finally result may well be the best that could be taken under the circumstances." (Van Houtven, 2002). We take the view that it would be appropriate, in the interests of greater transparency and democratic legitimacy that decisions be taken in constituencies by majority vote. This argument gains particular force in view of the fact that IMF and World Bank conditionalities imposed on poor countries include "good governance" and democratization requirements, and it seems not unreasonable that the same should apply to the BWIs themselves.

There is no presumption that all constituencies are alike in their composition or operation. We can distinguish two types of constituencies in terms of their composition by types of countries that make them up. Seven are mixed industrial, middle income and developing or transitional countries and nine are developing countries. Many of them, especially the mixed groups, have a member with a very large weight, usually an industrial country, which is dominant within the group and whose representative is invariably elected. Some constituencies have different arrangements for selecting their director and the office rotates; this may be the case where there is no one member who is dominant in terms of weight, such as the Nordic-Baltic constituency and also the two African constituencies; alternatively there may be two or three relatively dominant members among whom the office rotates but excluding the smaller members, for example the Mexican-Venezuelan-Spanish group where there are three dominant members.

The Articles do contain one provision for majority voting within constituencies: the procedure for a by-election for an executive director.<sup>13</sup> The members of the relevant constituency elect the replacement by a simple majority of the votes cast. There has been at least one case where a constituency has actually elected their director by simple majority voting rather than the consensus method<sup>14</sup>. We therefore feel it is of interest and appropriate to investigate the voting power of the member countries using voting power analysis on the stylized model of representative democracy suggested by the constituency system.

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<sup>13</sup> Article XII, Section 3 (f): "...If the office of an elected Executive Director becomes vacant more than ninety days before the end of his term, another Executive Director shall be elected for the remainder of the term by the members that elected the former Executive Director. A majority of the votes cast shall be required for election. ..."

<sup>14</sup> For example the Middle Eastern constituency in the IMF has selected its executive member by open election among candidates from different countries.

The first result is that because five members have weights which give them a majority within their constituency they are formally dictators and all the other members are powerless. This applies to Italy, Canada, Switzerland, Brazil and India. In effect this means just an increase in the voting weight for each one and a consequent big enhancement of its power: thus, Italy's IMF voting weight becomes 4.19 percent, instead of 3.26, Canada's becomes 3.71 instead of 2.94, and so on. The country that benefits most from this effect is Switzerland whose voting weight goes up by 1.25 percent of the votes, to 2.85 percent.

The details are in Table 4 which also shows those countries whose weight does not make them 'dictators' but which are dominant in their constituencies: Belgium, Netherlands, Australia and Argentina. The table shows the relevant power shares as well as the voting weights of the countries and constituencies. The increases in weight are much larger for this group: Belgium's weight increases by over 3 percent, the Netherlands by well over 2. percent and Australia and Argentina gain almost 2 percent. The power shares of these countries in their constituencies are less than 1 but they are dominant and would tend to win an election. For example Netherlands has a power share of over 98 percent, Belgium over 68 percent, Argentina 75 percent and Australia 49 percent. Thus the weight and power of these countries in the executive is enhanced by the constituency system.

**Table 4. Countries Dominant in their Constituency**

	IMF			World Bank		
	Weight %	Constituency Weight %	Power Share %	Weight %	Constituency Weight %	Power Share %
	(1)	(2)	(3)	(4)	(5)	(6)
Countries with an absolute majority in their constituency: 'Dictators'						
Italy	3.26	4.19	100	2.79	3.51	100
Canada	2.94	3.71	100	2.79	3.85	100
Switzerland	1.60	2.85	100	1.66	2.97	100
Brazil	1.41	2.46	100	2.07	3.60	100
India	1.93	2.40	100	2.79	3.40	100
Countries dominant within their constituency but without an absolute majority						
Belgium	2.13	5.14	68.89	1.81	4.80*	59.79
Netherlands	2.39	4.85	98.94	2.21	4.47	98.94
Australia	1.50	3.33	49.97	1.53	3.45	48.63
Argentina	0.99	2.00	75.00	1.12	2.32	75.00

Columns (1) and (4) are the countries' weight shares in the institution; columns (2) and (5) the constituency shares; (3) and (6) are the power shares within the constituency.

\*Votes cast by Austria.

The second set of results is the list of those countries that are powerless. These include, not only all the remaining members of the five constituencies which have a dictator, but also the results of the voting power analysis reveal another six countries which have zero voting power although their constituencies do not have a dictator (analogous to the Luxembourg EEC example described in section 2 above). These are Estonia in the IMF, Costa Rica, El Salvador, Guatemala, Honduras and Nicaragua.

The case of Estonia is shown in the analysis of the Nordic-Baltic constituency in Table 5. This is illustrative of the value of the voting power approach because it has the interesting property that although it has no member so powerful as to be a dictator, there is one member, which has some votes but which is still powerless in the IMF. The voting weights of the eight members are such that Estonia, with its 902 votes, could never cast the decisive vote, and therefore its voting power is zero. On the other hand it should be noted that this is just a property of the voting weights used by the IMF, and does not apply in the World Bank where the weights are different. In that body Estonia could be decisive in 2 out of 128 voting outcomes and therefore has some power.

**Table 5. Voting Power Analysis of the Nordic-Baltic Constituency**

IMF						
Country	Votes	Weight %	Weight Share	Decisive	Power Index	Power Share
Denmark	16,678	0.77	21.93	36	0.28125	17.64
Estonia	902	0.04	1.14	0	0	0
Finland	12,888	0.59	16.81	28	0.21875	13.72
Iceland	1,426	0.07	1.87	4	0.03125	01.96
Latvia	1,518	0.07	1.99	4	0.03125	01.96
Lithuania	1,692	0.08	2.22	4	0.03125	01.96
Norway	16,967	0.78	22.24	36	0.28125	17.64
Sweden	24,205	1.11	31.73	92	0.71875	45.09
Sum	76,276	3.51	100			100
World Bank						
Country	Votes	Weight %	Weight Share	Decisive	Power Index	Power Share
Denmark	13,701	0.85	25.35	54	0.42188	23.28
Estonia	1,173	0.07	2.17	2	0.01562	0.86
Finland	8,810	0.54	16.30	22	0.17188	9.48
Iceland	1,508	0.09	2.79	10	0.07812	4.31
Latvia	1,634	0.1	3.02	14	0.10938	6.03
Lithuania	1,757	0.11	3.25	14	0.10938	6.03
Norway	10,232	0.63	18.93	42	0.32812	18.10
Sweden	15,224	0.94	28.17	74	0.57812	31.90
Sum	54,039	3.33	100			100

A second example of a constituency that does not have a dictator but does have a number of powerless members is the one that contains Spain, Venezuela, Mexico, and most of Central America. There are three large members which share the power equally among them and all the five small members have no power at all. The analysis is presented in Table 6. Each of the three big countries has a power index of one half, and their power shares are all one third. The results are the same for the World Bank, although the voting weights are slightly different.

**Table 6. Voting Power Analysis of the Spanish-Central American Constituency (IMF)**

Country	Votes	Weight Share	Decisive	Power Index	Power Share
Costa Rica	1891	2.03	0	0	0
El Salvador	1963	2.11	0	0	0
Guatemala	2352	2.52	0	0	0
Honduras	1545	1.66	0	0	0
Mexico	26108	28.08	64	0.5	33.33
Nicaragua	1550	1.67	0	0	0
Spain	30739	33.06	64	0.5	33.33
Venezuela	26841	28.86	64	0.5	33.33
Sum		100			100

Therefore there are in total 41 member countries (22 percent of the membership), in possession of some 4.3 percent of the votes of the IMF (5.5 percent of the World Bank) that would be powerless. They include some industrial countries but in the main they are developing countries. They are listed in Table 7.

Now we can analyse voting power of every member by considering an indirect voting system. Each member's power is the product of voting power in two voting bodies: first, in the constituency, then through the power of the constituency in the

Executive. The member's voting power index is the arithmetic product of these two power indices. It is of interest to use this technique to investigate which members gain and which lose power from the constituency system. Obviously the 41 members who have been shown to be powerless lose from such a two-stage system. However it is not clear that the countries that dominate their constituencies, including the dictators listed in Table 4, necessarily gain since it depends on the power of their constituency. Table 8 gives some results of this analysis for both institutions. Only the results for the countries that gain or lose most are presented. The power indices for the Governors, from Table 1, have been repeated, and these are used as the basis of comparison with the indices for the two-stage voting structure we have assumed.

**Table 7. The Countries with No Voting Power**

Country	Weight IMF %	Weight WB %	Country	Weight IMF %	Weight WB %
Poland	0.64	0.69	Suriname	0.05	0.04
Philippines		0.44	Guyana	0.05	0.08
Portugal	0.41	0.35	Kyrgyz	0.05	0.08
Ireland	0.40	0.34	Tajikistan	0.05	0.08
Greece	0.39	0.12	Turkmenistan	0.05	0.05
Colombia	0.37	0.41	Barbados	0.04	0.07
Bangladesh	0.26	0.32	Estonia	0.04	
Serbia	0.23	0.11	Haiti	0.04	0.08
SriLanka	0.20	0.25	Albania	0.03	0.07
TrinidadTobago	0.17	0.18	Belize	0.02	0.05
Ecuador	0.15	0.19	San Marino	0.02	0.05
Uzbekistan	0.14	0.17	StLucia	0.02	0.05
Jamaica	0.14	0.17	Antigua	0.02	0.05
DominicanRepublic	0.11	0.14	Grenada	0.02	0.05
Guatemala	0.11	0.14	StKitts	0.02	0.03
Panama	0.11	0.04	StVincent	0.02	0.03
ElSalvador	0.09	0.02	Dominica	0.02	0.05
Costa Rica	0.09	0.03	East Timor	0.02	0.05
Azerbaijan	0.09	0.12	Bhutan	0.01	0.05
Bahamas	0.07	0.08			
Nicaragua	0.07	0.05	<b>Total Votes</b>	4.35	5.51
Honduras	0.07	0.06	Percentage of Member		
Malta	0.06	0.08	Countries	22.28%	22.28%

Table 8 gives the results for the top ten gainers and the top ten losers, comparing the country's power in this two-stage voting procedure with its power in the governors<sup>15</sup>. The results show that the countries which gain most (in some cases very substantially) tend to be dominant in their constituencies: Belgium, Netherlands, Switzerland, Australia and Brazil. It is not a universal effect, however, and notably neither Canada, Italy nor India are on this list. However it does tend to indicate

<sup>15</sup> The ordering is in terms of the changes in the IMF powers.

another hidden source of bias towards the medium sized European countries. The biggest losers are all the members who are appointed.

**Table 8. Voting Power Indices for the Executive Board as a Democratic Representative Body: Biggest Gainers and Losers**

	IMF			World Bank		
	Governors	Two Stage Voting	Difference	Governors	Two Stage Voting	Difference
<b>Biggest Gainers:</b>						
Belgium	0.0761	0.1356	0.0595	0.0663	0.1253	0.0590
Netherlands	0.0853	0.1381	0.0528	0.0812	0.1318	0.0505
Sweden	0.0397	0.0718	0.0321	0.0345	0.0570	0.0225
Indonesia	0.0345	0.0600	0.0255	0.0345	0.0563	0.0218
Switzerland	0.0572	0.0809	0.0237	0.0609	0.0874	0.0265
Kuwait	0.0231	0.0445	0.0214	0.0307	0.0547	0.0240
Australia	0.0535	0.0749	0.0214	0.0561	0.0846	0.0285
Brazil	0.0502	0.0699	0.0197	0.0762	0.1061	0.0299
South Africa	0.0310	0.0494	0.0184	0.0311	0.0545	0.0234
Mexico	0.0428	0.0609	0.0181	0.0432	0.0665	0.0233
<b>Biggest Losers:</b>						
Austria	0.0311	0.0109	-0.0202	0.0256	0.0166	-0.0090
China	0.1054	0.0837	-0.0217	0.1026	0.0821	-0.0205
Ukraine	0.0229	0.0001	-0.0228	0.0253	0.0001	-0.0251
Poland	0.0229	0.0000	-0.0229	0.0253	0.0000	-0.0253
Saudi Arabia	0.1157	0.0918	-0.0239	0.1026	0.0821	-0.0205
France	0.1794	0.1412	-0.0382	0.1598	0.1272	-0.0326
UK	0.1794	0.1412	-0.0382	0.1598	0.1272	-0.0326
Germany	0.2189	0.1711	-0.0478	0.1669	0.1320	-0.0349
Japan	0.2243	0.1751	-0.0492	0.3014	0.2332	-0.0682
USA	0.7631	0.6459	-0.1172	0.7471	0.6231	-0.1240

## 8. Conclusions

This paper has analysed the voting system of the IMF and World Bank using the method of voting power analysis and using power indices. It argues, and hopefully

has demonstrated, that this approach provides valuable insights into understanding weighted voting systems such as this. The method has been applied in two ways: first in a straightforward analysis of power relations in the existing decision-making system, taking into account given structures in terms of voting weights; and secondly, more speculatively, to analyse scenarios of interest: the effect of increasing the basic votes as proposed as a means of increasing the voice of the poor, and secondly to investigate the implications of making the Executive Board into a representative body on transparent, democratic principles based on majority voting within constituencies. The principal finding – from the first analysis - is that the power share of the United States is always substantially much more than its share of voting weight, while for all other members, their power shares are slightly lower than their weight. Weighted voting is therefore a source of additional bias in favour of the USA in the Bretton Woods institutions. This bias would remain even after a redistribution of votes to restore the basic votes to their original level.

That there is such a pronounced difference between voting weight and voting power and for the USA, as we have found, gives added support to arguments for breaking the link between the quotas or shareholdings and votes. If one wishes to argue that voting power should be based on the payment of financial contributions, then these ought to be related to voting power rather than only the weighted vote.

The second use of voting power analysis in this study has been to investigate the implications for voting power of the use of an indirect two-stage voting system that we have assumed to exist with the current voting weights. The results suggest that such a system would tend strongly to benefit the smaller European countries, especially Belgium and the Netherlands, but also other industrial countries as well.

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